Railway Age

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Courtesy in the Dark Corners

MANY of the railroads have been making special efforts to inspire employees of all grades to deal more courteously with their patrons. Not only is emphasis being placed upon giving good service, but the employees are being inspired to add those little touches in the way of special service and courtesy which will make the traveler feel at home, or will make a special appeal to the shipper or receiver of freight. Travelers on the high class passenger trains appreciate the attention which is being paid to their needs and the efforts which are being made to add to their comfort, and to make their journeys pleasant. Has the same attention, however, been given to travelers on local trains or on branch line trains? These are used not only by the people who live in the cities and villages through which they pass, but by a large number of commercial travelers who cover these smaller towns. These men frequently have to start the day at an unreasonable hour. They may have to make several changes during the day and frequently do not reach their journey's end until late at night. Under these conditions they sometimes get into a frame of mind where they are likely to become quite unreasonable if things do not go right. Railroad employees with a little effort and tact can often change the entire attitude of these men toward the railroad. The difficulty, however, is that many of the employees on the branch lines or lighter traffic lines do not seem to have gained the same impression about dealing courteously with the patrons that is true on the higher class trains or the heavier traffic portions of the system. Is it not just as essential, or even more essential, that these employees be properly educated and inspired in this respect? The commercial traveler with a grievance, or fancied grievance, can do a lot of damage to a railroad as he goes from merchant to merchant and from town to town. The effect of this is all the greater in that many of the merchants and professional men with whom he deals are intimately acquainted with their representatives in the legislature and Congress and call them by their first names. Ought not special pains be taken to see that the same degree of courtesy is extended to all of the travelers and patrons of the railroad, even on the smallest branches and at the least important places?

Railroad Production Shops

THE modern automobile is vivid, daily evidence of the efficacy of quantity production methods in reducing costs. What was only a few years ago a rich man's toy is now brought within the reach of millions in moderate circumstances. The railroads have adapted production methods to many repair shop operations and yet there are probably few shops in which these methods cannot be more fully applied to advantage. Naturally, some operations lend themselves more readily to handling on a production basis than others, but, in any case, the principles involved are the same, namely, division of the work into repetitive single units; provision of modern machinery and trained men to take care of each unit; orderly and studied placement of machinery to avoid back travel and lost motion on the part of either men or material; and last, the development of a supply and trucking system which will insure freedom from delays for material, or accumulation of completed work at any point. A considerable number of railroads have applied the above principles to heavy repair work in both locomotive and car shops with profit. Car wheel shop work lends itself particularly well to production methods because so many of the operations are repetitive and because in so many cases this work can be segregated in a separate shop building apart from the others and not subject to interference with other regular heavy repair operations. The idea has also been advanced recently of providing a separate shop and modern machinery and methods to handle system locomotive rod work. One shop of this kind in the Chicago district turned out 42 completed new main rods and straps and 142 side rods with a total force of 15 men in the first three months of this year. During the same period this shop also handled heavy repairs to the rods on about 60 locomotives. Railroad shops have been in the past criticized for their more or less haphazard methods and lack of adequate machinery for handling repair work. These conditions have been greatly improved in many shops and it cannot be questioned that further work along this line offers one of the most promising opportunities of saving money in the mechanical department.

The Train Control Situation

OF the 46 roads on which the first train control order, dated June 13, 1922, is now effective, nine are reported as having a complete engine division equipped. These include the three older installations on the Chicago & Eastern Illinois, the Chicago, Rock Island & Pacific, and the Chesapeake & Ohio, the first two of which have been inspected and approved with certain reservations by the commission. One other complete division installation, that of the Oregon-Washington Railroad & Navigation, was recently inspected by representatives of the commission, but a report has not yet been rendered. Of the five other installations now in full service those of the Norfolk & Western, the Southern Pacific and the Atchison, Topeka & Santa Fe are characteristic of installations involving changes or new construction of pole lines and automatic signaling. Considering the extent of the order, the changes on the part of the commission, the intensive development required of the manufacturers and the heavy construction by the carriers, it is gratifying to see that practically 20 per cent of the installations are completed. Of the remaining 37 carriers the majority report

great progress. The Baltimore & Ohio, the last to make its decision, has recently let a contract for its installation. Twenty-two of these thirty-seven roads have qualified for an interim inspection, that is, they have twenty or more miles of road and an equivalent proportion of locomotives equipped. The representatives of the commission have inspected twelve of these twenty-two partial installations and are proceeding to inspect others as fast as practicable.

In the majority of cases it is to be expected that those roads having test installations of twenty miles or more will extend them over their first divisions. In fact, the reports of the commission on interim inspections have been so non-committal that the cariers are really required to finish a division to get a definite decision on certain features of their train control devices and methods of installation of control. For this reason several of the roads are proceeding to finish a division without waiting for an interim inspection.

Therefore, it may well be said that the train control situation has settled down to a stage of development that should be quite satisfactory to a majority of those concerned. In recognition of this spirit on the part of the carriers the commission has assumed a more tolerant attitude on several heretofore controversial points. With but one exception extensions of time beyond January 1, 1925, have been granted to those carriers requesting it. The control of the situation is, therefore, now largely in the hands of the carriers who doubtless will endeavor to give the commission no cause to change its attitude.

Concerning the So-called "Surcharge"

THE so-called "Pullman surcharge" is as fair and just a charge as the railways ever made for any service. It is reasonable on the basis of the cost of the service because it costs the railway more to carry a passenger in a sleeping or parlor car than in a day coach. It is reasonable on the basis of the value of the service because the railroad service rendered in carrying a passenger in a sleeping or parlor car is worth more to him than the service rendered in carrying him in a day coach. It is based on the additional space in the train allotted to the passenger who chooses to ride in a sleeping or parlor car rather than in a day coach, and the space allotted to him is the best measure available both of the cost incurred in transporting him and of the comfort and luxury with which he is provided. The case of the railways for the so-called "surcharge" is so strong and has been so ably presented to the Interstate Commerce Commission that it has been upheld by the commission in a decision rendered after a most exhaustive investigation.

The organizations representing the commercial travelers, which have led the fight against this charge, have however, renewed their attacks upon it. After having made an unsuccessful political appeal to Congress they have filed a petition with the commission asking that the so-called "surcharge" be reduced by one-half because some members of the commission who voted to uphold it intimated they believed that it should be reduced.

The *Railway Age* recently published an editorial saying that the name and method of collection of this charge help to make it unpopular, and urging the traffic officers to make changes in its name and method of collection. The reckless unfairness of the campaign being carried on by the commercial travelers' organizations is illustrated by the fact that they are using quotations from this editorial in their renewed attack.

We frankly admitted in the editorial mentioned that the charge is unpopular, but we did not intimate it should be abolished or reduced. Its unpopularity is partly due to the fact that it is called a "50 per cent Pullman surcharge." As a matter of convenience it is measured by the charge made by the Pullman Company for sleeping or parlor car service, but it is actually an extra charge made for extra railroad service. It merely makes it necessary for the passenger to pay the railroad about 10 per cent more for the extra service of transporting him in a sleeping car instead of in a day coach. Unfortunately, however, the attention of travelers is constantly called, by the tickets sold, to the fact that they are required to pay a so-called "50 per cent surcharge," and many do not understand the reason for it or who gets it. The constant flaunting of the extra charge in the passenger's face, and the lack of understanding about it cause constant irritation.

We still believe the traffic officers should agree on and adopt some plan which would cause use of the phrase "50 per cent Pullman surcharge" to be abandoned and which would result in the collection of the charge in a way that would not constantly remind passengers of it and cause misunderstanding as to its nature and purpose. We believe the collection of the charge should be placed entirely in the hands of railroad agents. In some of the plans that have been considered the so-called "surcharge" would not be separately mentioned on the tickets sold for travel between large cities, which constitute about 80 per cent of all tickets. They would show merely one charge for the Pullman service and another for the railroad transportation, including the so-called "surcharge." In other words, if the day coach fare was $10, and what is now called the "surcharge" was $1, the railroad charge for a ticket to be used in a sleeping car would be shown upon the railroad ticket as $11. There are difficulties in the way of adoption of such a plan; but it would have some great advantages over the present one, and it is difficult to see in what way it would be unsound or impractical.

However, whether the so-called "surcharge" is unpopular or not has nothing to do with the soundness of the principle on which it is based. That principle is sound and defensible, and the Interstate Commerce Commission cannot reduce the charge without stultifying itself. The rate-making provisions of the law which the Commission administers not only require it to fix rates that will be reasonable as compared with each other, but also rates which in the aggregate will enable the railways composing each large territorial group to earn a fair return upon their valuation. The Commission has announced a tentative valuation of each group of roads and has specifically held that upon that valuation they are entitled to earn an annual net return of 5¾ per cent. During the five years that the Transportation Act has been in effect, however, the roads of no group have earned the return to which the commission has held they are entitled. If any reduction in the surcharge or any other charge made by the railways is justifiable, a compensating advance in charges for other service is justifiable. The railways have their lawful duty to perform, but the commission, also, has its lawful duty to perform, and under present conditions it would disregard that duty if it should reduce the surcharge without making advances in other charges, either freight or passenger.

Unfortunately, past experience has shown that when the commission does regulate rates on sound principles political attacks upon the policy followed by it may be made and it may be overruled by the action of Congress.

In the long run public sentiment determines the way the railways are regulated. There is still need for a more complete and general recognition of this fact by railway officers. This need is well illustrated by the situation with respect to the so-called "surcharge." Some members of the Interstate Commerce Commission have publicly indicated a wish that the railways would offer some different and better plan for collecting the revenue now derived from it. It now seems probable a new plan will be proposed, but whether it will be sufficiently different from the old one to accomplish the purpose aimed at remains to be seen.

In any event, it appears plain that greater and more comprehensive efforts to educate the public as to the reasons why the charge is fair and proper and as to who gets it should be made. The railways spend millions of dollars annually in advertising competitive passenger service. Might they not well put part of this money into a common fund and use it to carry on advertising and publicity on behalf of all of them in explanation and defense of the "surcharge"? The amount of revenue involved is about $37,000,000 a year, and the loss of all or a part of it would involve a corresponding loss of net operating income. It would be well worth while to spend a substantial amount in educational work to protect the revenue involved.

Modern Tendencies in Retaining Wall Construction

AN article appearing on another page describes a new form of pre-cast retaining wall construction and directs attention to a tendency toward a change in the attitude of engineers with regard to the requirements of retaining walls. Formerly, only two general classes of material were available for this type of construction, stone or brick masonry, and wood. While the latter, used in the form of cribbing or plank construction supported by piles, proved effectual and economical in first cost it was of definitely limited application owing to its short life. For this reason masonry was the only material which offered opportunities for permanent construction and experience with it taught the builders that permanence was to be had only by heavy, massive construction on secure foundations.

It is true that only a relatively small proportion of the walls constructed ever failed by actual sliding on the foundation or complete overturning. But neglect to obtain sufficient massiveness, proper distribution of the weight or secure foundations frequently has led to incipient failures—uneven settlement or other difficulties manifested by the forward movement of the top of the wall, cracks or similar defects which reflected on the ability of the builder and brought about a progressive deterioration of the structure.

Experience with such failures and studies of the mathematics of earth pressure and the mechanics of the gravity retaining wall gave rise to practices which embody higher factors of safety than those employed in most other engineering structures. These rules of good practice were not subjected to appreciable modification with the advent of mass or reinforced concrete construction, except insofar as a greater degree of refinement has been necessary with the introduction of the more complex types of reinforced concrete wall. However, the basic rule that the wall must be secure against that degree of distortion which would result in the formation of cracks or clearly evidenced settlement has prevailed with the newer type of built-in-place structures.

As progress in reinforced concrete construction led to the introduction of pre-cast concrete certain engineers gave consideration to the adoption of such units to retaining wall construction, taking the cue from the old wood crib wall. This led also to a critical consideration of the entire subject of retaining walls and their requirements. If, as certain designers pointed out, the only requirement for a retaining wall was that it retain the earth placed behind it, it mattered little if the structure provided to serve this purpose was subjected to considerable distortion under load if this distortion did not result in injury to the structure which would result in its eventual deterioration. As a consequence of these studies certain forms of retaining wall have been developed which are designed to permit of appreciable settlement without injury to the structure. These walls are lighter and require the use of less material in their construction and because appreciable settlement is not objectionable they can be built with less expensive foundations than are required for the more rigid forms of retaining walls.

Obviously, such walls are not suitable for all purposes. There are measurable limitations on the height to which they may be built. It is also well to keep in mind that æsthetics play an important part in engineering work. Consequently, there are many locations in which a massive wall of finished appearance is preferred to the lighter cribbing construction. It is also true that cribbing construction, as with all pre-cast concrete work, whether used in retaining walls, bridges or buildings, is not always the cheapest even in first cost. For while factory production of the concrete unit makes for low cost as compared with built-in-place concrete, it is well to remember that the items of transportation and erection will be responsible for a considerable portion of the total cost. But these facts should not be difficult to get at and with an estimate favorable to the unit construction it behooves the engineer to weigh carefully the requisites for the retaining wall at the site in question and not allow his decision to be weighed by established precedents without a thorough consideration of their real merits.

Rates Decline—Wages Advance

WITHOUT the public knowing of them, or railway officers saying much about them, there are occurring in the railroad industry two series of changes both of which tend to reduce the net earnings of the carriers. Rates are slowly but steadily declining, and wages are slowly but steadily advancing. That the net return earned is being maintained and even increased is due to the volume of traffic, lower prices of fuel and materials and a steady increase in the efficiency of operation.

No general reduction of rates has been made since 1922. Nevertheless both the average revenue per ton-mile and per passenger-mile show reductions since then which are saving the public large amounts and costing the railways correspondingly. Average revenue per ton-mile in 1924 was exactly the same as in 1923. It happens, however, that coal constitutes a much larger part of the tonnage of the railways than any other commodity and that it is transported at rates substantially less than the average. There was a very large decline in the amount of coal transported in 1924, and the fact that in spite of this the average revenue per ton-mile for the year was the same as in 1923 is sufficient evidence that there occurred during the year a decline in many rates. That this was true is completely demonstrated by the average revenues received per ton per mile in the four months ending with January, 1925. Dur-

ing these months the coal tonnage handled was substantially less than in the corresponding months a year before, and yet in each of these months there was a decline in the revenue per ton-mile received as compared with that received in the corresponding month a year before. In January, 1924, for example, the average revenue per ton-mile was 1.086 cents, while in January, 1925, it was only 1.057 cents, which is the lowest figure that has been reached since the general advance in rates in 1920. The extent of the decline that has been occurring is illustrated by the following figures: In October, 1924, the freight earnings of the railways were $13,745,000 less than they would have been if the average revenue per ton-mile had been the same as in October, 1923. Computing for other months in the same way, it is found that the decline in average revenue per ton-mile cost the railways in November, $13,557,000; in December, $8,923,000 and in January, $9,613,000.

Likewise the average revenue per passenger-mile is declining. The losses in revenue caused by the differences in the average revenues per passenger-mile received in these same months and the corresponding months of the year before were as follows: October, $1,608,000; November, $1,620,000; December, $1,261,000; January, $665,000. There has been no general reduction of passenger rates since 1920, but in January, 1923, the average per passenger-mile was 3.104 cents; 1924, 3.092 cents; 1925, 3.069 cents.

The decline that is occurring in freight rates is due to the fact that readjustments in them are constantly being made and that practically every readjustment, whether ordered by the Interstate Commerce Commission or made voluntarily by the railways, is effected by reducing some rate or rates. This process and its effects are not new. It went on steadily for years prior to the war with the result that in spite of a few advances in rates the average revenue received by the roads for hauling one ton one mile declined until it was the lowest in history in 1916. Likewise the decline in average revenue per passenger-mile is due to constant readjustments and also to the increasing number of special reduced rates made by the railways.

While the trend of rates is downward, the trend of wages is upward. In January, 1923, the average compensation of employees paid on a daily basis (not including overtime) was $7.52 a day; in January, 1924, $7.62 and in January, 1925, $7.71. In January, 1923, the average compensation of employees working on an hourly basis (not including overtime) was 56 cents; in January, 1924, 58 cents and in January, 1925, 59 cents. Including overtime the daily and hourly earnings of these two classes of employees were larger than the figures given. Corresponding increases in the wages paid are shown throughout 1924 when the figures are compared with those for 1923. These advances in daily and hourly wages resulted in employees receiving in straight time wages in October, 1924, $4,000,000 more than they would have received if the rates of pay had been the same as in the corresponding month of the preceding year; in November, $5,000,000 more; in December, $3,000,000 more; and in January, 1925, almost $4,000,000 more.

The railways in the four months for which these figures are given earned a substantially larger net return than in the corresponding months a year previous. The statistics cited show conclusively that this increase in net was not secured at the expense of either railway employees or railway patrons, since the employees were paid higher wages and the public was charged lower rates. There could be no more conclusive proof of the increase in efficiency of operation than the fact that while rates were reduced and wages were increased the net return also was increased. Meantime, the reductions of rates and increases of wages that have occurred explain why the railways in spite of the increases in efficiency of operation that have occurred are still failing to earn the 5¾ per cent return on their valuation to which the Interstate Commerce Commission has held they are entitled.

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Advertising with Special Reference to Railway Publicity, by D. Richards. 20 p. Great Western Railway Lecture and Debating Society, London. Proceedings. Session 1924-25. No. 179.

Bibliography on the Marketing of Agricultural Products. U. S. Dept. of Agriculture. Miscellaneous Circular No. 35. 56 p. Pub. by Govt. Print. Off., Washington. 10 cents.

Chas. Wolff Packing Company, Plaintiff in Error, vs. Court of Industrial Relations of the State of Kansas. Opinion of the United States Supreme Court. April 13, 1925. 8 p. Pub. by Govt. Print. Off., Washington.

Great Western Ports, by the Great Western Railway (England). 273 p. Produced and Pub. by H. N. Appleby, London.

Industrial Development in South Africa. Compiled by Dept. of Mines and Industries in Collaboration with South African Railways and Harbors Administration. 219 p. Pub. by Government Printing & Stationery Office, Pretoria.

Passenger Train Working in Relation to Road Motor Competition, by E. F. Wilkinson. 13 p. Great Western Railway Lecture and Debating Society. Proceedings. Session 1924-25. No. 177.

Plan for the Reorganization of the Boston & Maine. March 31, 1925. Approved by the General Readjustment Committee. 13 p. Boston.

The Railwayman and the Public, by H. Marsh. 14 p. Great Western Railway Lecture and Debating Society. Proceedings. Session 1924-25. No. 178.

Range of Prices of Railroad Construction, 1910 to 1923 Inclusive. Testimony of Noah Johnson, before an Examiner of the Interstate Commerce Commission, Feb. 24, 1925. Finance Docket No. 3840. 17 p. Pub. by President's Conference Committee, Philadelphia.

Return Relating to Railways of Great Britain for the Year 1924. Preliminary Statement. Ministry of Transport. 10 p. Pub. by H. M. Stationery Office. 2 shillings.

Zion National Park, Bryce Canyon, Cedar Breaks. Issued by Union Pacific System. 47 p. Omaha.

Periodicals

Community Transportation, by Frank R. Coates. Public Service Management. April, 1925. p. 101-102.

Future of Our Railways. Addresses before Economic Club of New York, Dec. 8, 1924, by Howard Elliott, Alfred P. Thom, William N. Doak, Richard H. Aishton, and H. G. Taylor. Consensus v. 9, No. 4; January, 1925.

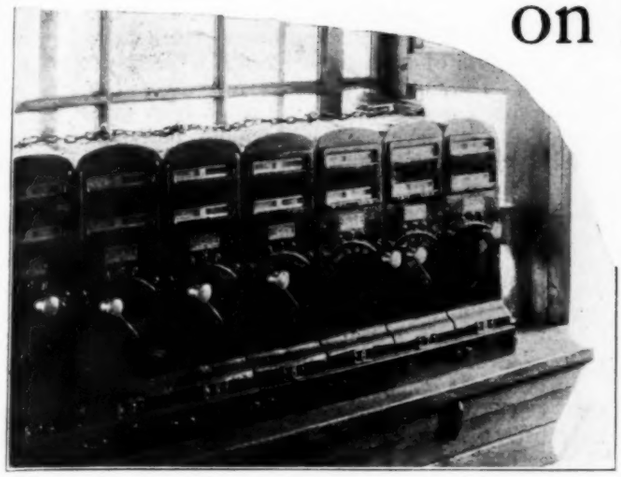
The New Niagara Arch Bridge....for the Michigan Central, by H. Ibsen. Engineering Journal. April, 1925. p. 159-162.

Transformation of the German Railway System Since the World War, by Ernest Esch. Harvard Business Review. April, 1925. p. 312-320.

Train Orders Eliminated by Signals on Busy Single Track*

Central of Georgia provides special indicator for switching moves that reduces delays—Operator controls trains in section formerly divided into three automatic blocks

By E. B. DeMeritt
Signal Engineer, Central of Georgia, Savannah, Ga.



An Installation of Desk Circuit Controllers

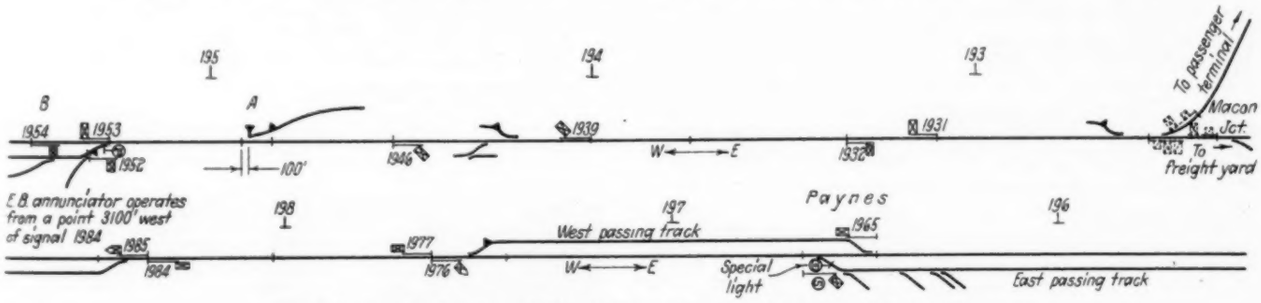
FOR some time the Central of Georgia has been operating trains by signal indication on double track, but the first operation on single track by signal indication only, started on March 7, 1924, on four and one-half miles of main line track near Macon, Ga. This section is at the end of one operating division where connections are made with two other operating divisions, and in addition to the through train movements there is helper service for westbound freight trains and considerable switching of industry tracks.

An electric interlocking plant is located at the east end of this territory, at which point passenger trains are routed into the terminal station and freight trains into the yards, each some distance away. On account of northbound passenger trains from Florida points being backed into the passenger terminal, it was necessary that signal *1932* (shown on the plan)** be an absolute signal under the control of the operator at the junction to protect the turn-around moves over the wye switch.

Circumstances Limited Traffic Previously

When operating under time table and train order rights, a freight train might pass Paynes, which is the last passing track for eastbound trains, with ample time to clear a following passenger train at the wye, and be held at signal *1932* because of some move from another division over the wye. It was then necessary for this train to send out a flag, and, when the signal was cleared, wait for the flagman to come in. This caused delay not only to the freight train, but in some cases to following passenger trains, and caused other delays at the interlocking plant due to having to keep the route lined for this freight train not only while the move was actually being made, but while the flagman was returning to his train. Eastbound freight trains were often obliged to wait at Paynes because of the time required to issue the necessary orders to advance them against passenger trains that might be delayed at the terminal station. Westbound freight trains, too, could not leave the yard until the arrival of opposing passenger trains and their registration at the terminal station, over a mile away.

The switch engine working the industries in this territory and the railway company's creosoting plant at Paynes was obliged to have orders to "work extra" each day, and was delayed in its work whenever scheduled trains were late. Further, no extras could be run without getting orders to the crew of the switch engine, which was often a difficult matter.



Track Layout in Section of Single Track Operated by Signal Indication

It is readily seen, then, that this four and one-half miles is the neck of the bottle for the division to the west, and affects somewhat two other divisions, and yet the physical conditions are such that double tracking would be extremely expensive. It was therefore decided to add to the existing automatic signals the necessary equipment to place all signals between Paynes and Macon under the control of the operator at Macon Junction interlocking plant and abolish time table and train order rights in this territory.

How the Signaling System Was Worked Out

It was decided that it was not necessary to change the switches at the east and west ends of the east passing track from hand-throw to power operation with distant

*One of the papers presented at the convention of the Signal Section, A. R. A., March 13, 1925.
**Ordinarily this would be a distant signal to the interlocking plant.

control. It was, however, necessary to enable the operator to give a distinct indication when the switch at the east end could be thrown. The clearing of signal *1952* by the operator without lining up the switch would be undesirable, and it was decided to place a switch indicator at the switch, this indicator to be cleared under proper interlocked conditions by the operator, after which the switch could be lined by hand and signal *1952* would then clear automatically. The only semaphore added was at the east end of the passing track where formerly a standard automatic double signal location was located about 30 ft. east of the switch point. It was necessary to move the eastbound signal back of the fouling point and add a signal on the siding.

To place the control of the signals in the hands of the operator, six interlocked table circuit controllers were used.

Lever *1* is a traffic direction lever, and cannot be moved from one direction to the other while any track section is occupied in the block extending from signal *1931* to signal *1953*. Lever *2* controls the block from the east end of the passing track to the west end; that is, westbound signal *1953*, eastbound signal *1966*, (opposite *1965*) and the "Take Siding" indicator on the latter.

Lever *3* controls eastbound signal *1954*. Lever *4* clears the switch indicator at the east end of the passing track and allows signal *1952* to clear after the switch is lined. Lever *5* gives an unlock of the electric switch lock at *A*. The traffic lever must be on center, that is, neither in the eastbound nor the westbound position, before Lever *5* can be reversed, therefore a move from this siding can be made safely in either direction. Lever *6* controls westbound signal *1931*.

As stated previously, signal *1932* was already controlled by the operator prior to this change.

Special Signal to Meet Switching Conditions

One rather unusual move was provided for in a novel way. The switch engine daily takes a drag of cars to the east passing track and switches the four spur tracks leading off the west end of this siding. It then runs around its drag and switches the two spur tracks leading from the east end of the passing track. It was therefore necessary to provide means to authorize this run-around move. In order that this move of the switch engine could be made without entering the territory under the control of the dispatcher and being required to get orders; the eastbound signal opposite *1965* was moved 200 ft. west of the switch and an electric lamp placed at the fouling point, which, when no train is approaching in either direction, can be lighted by the operator at Macon Junction after he has displayed stop signals to protect the move.

This light authorizes the crew to move the switch engine to the main line (but not west of Paynes) and eastward to the first eastbound signal. As movements west of signal *1966*, opposite *1965*, are based on time table and train order rights, the switch engine would have no rights west of this point without train orders. If, for any reason, a westbound train occupies this passing track, the light is not needed, as the westward move is based on train order rights. For this reason no reference was made to this light in the bulletin and instructions to road crews. However, the automatic part of the control of the light is the same as would be used on a semi-automatic signal, and the light really combined the functions of two signals required to take care of this particular move—one a westbound from the siding to the main line, and the other an eastbound.

As there was already an annunciator extending to the east end of the passing track, it was necessary to add only one annunciator and one block indicator. An indicator was also added to show when the east passing track is occupied. All signals in this territory were made absolute.

No change was made in the track circuit control of the signals, except a slight one for signals *1953* and *1966* to allow more flexibility of movements, which could be done safely because of both signals being lever controlled and absolute. The automatic control relay of each lever controlled signal is cut thorugh an extra relay controlled by one of the six levers. All functions pertaining to one block have a lock circuit, front and back, in series, so that when a lever is restored to normal, all functions must be normal, and when a lever is reversed, a check is made that all opposing signals are actually at stop. Approach locking is used for eastbound moves, but is not necessary for westbound. There is also a cross protection relay for each block, so that when the lever-controlled relay of a signal is energized, the original automatic control circuit of the opposing signal is opened.

In other words, we have the same protective features that we have on interlocking plants over which trains have been operated for years on signal indication, except that we have no check that the switches are locked and no guard against the throwing (in this case, by hand) of a switch with a train on the switch or approaching it. However, these two conditions are in no way different in straight automatic signal territory than in territory where the signals are used as the sole authority for a train to proceed.

This signaling scheme and this method of operation have proved satisfactory to all concerned. The elimination of train orders for helper engines and the switch engine has expedited their moves. The engine switching in this territory is now handling more cars with less overtime. The yard is cleared by the prompt moving of trains when ready. The dispatcher is helped by being able to issue orders based on the actual time westbound freight trains leave the yard, instead of when they expect to be ready to leave. Inferior trains have available the full extent of the time that a superior train is late on schedule. The new system is more flexible than manual block, and provides for complete control of train movements through three blocks by one man.

Repairing Rails by Oxy-Acetylene Process on the Great Northern

Revenue Needs of Western Roads

I. C. C. told their situation calls for increases rather than reductions in rates

WASHINGTON, D. C.

AN investigation by the Interstate Commerce Commission of the revenue needs of the western railroads, as a preliminary to other inquiries which may be made in connection with its general rate structure investigation, is urged upon the commission in a statement filed by the carriers in the Western and Mountain-Pacific groups, in response to its invitation for suggestions as to the intent of the Hoch-Smith resolution and the procedure to be observed in giving effect thereto. The statement asserts that under present conditions in the western district such procedure as the commission may adopt must take account of the necessity for increases in revenue rather than reductions, in order to assure continued maintenance of adequate transportation, and that this has already been menaced by the compulsory reductions in rates on descriptions of traffic moving in large volume, since the general increase in 1920, until the average revenue per ton mile in the western district is now but 10 per cent in excess of the average before that increase.

After outlining their interpretation of the intent of Congress and the construction of the joint resolution, and describing the present situation of the western roads, including a reference to the receivership of the Chicago, Milwaukee & St. Paul, the carriers in their brief recommend, as an orderly course of procedure:

1. In view of the dissimilarity of conditions confronting carriers in the different rate groups, that the commission should treat separately in such action as it may take under the joint resolution, the situation in the western district;

2. As a foundation upon which to conduct such other inquiries as may be necessary, for the commission, as an incident to this proceeding, to investigate the revenue needs of carriers in the Western and Mountain-Pacific rate groups in order to ascertain what further course the inquiry shall thereafter take;

3 That if the affidavits filed in this proceeding on May 15, 1925, disclose allegations that some industries or particular classes of traffic receive undue advantages under the present rate adjustment, the commission inaugurate an inquiry in respect to such industries or classes of traffic, to ascertain whether there is in fact in respect to them such relative prosperity as to permit of greater advances in the rates on their product than on other commodities.

As to the third suggestion it is stated that as each shipping interest may be hesitant to suggest advances on the traffic of others, if it is desired to pursue the inquiry further as to the conditions which prevail in the several industries, it may be that the commission will find it desirable to enlist the aid of other departments of the government, which maintain statistics concerning industrial activity in the United States.

Referring to the condition of the western roads, comprising 56.2 per cent of the total mileage of Class I roads in the United States, the statement says that while the underlying purpose of the transportation act to insure the maintenance of an adequate system of transportation has been fully realized, it has not been fully realized so far as the rehabilitation of the credit of the carriers is concerned, and that the rate of return upon property investment of the Class I western carriers has been only 3.12 per cent in 1921, 3.45 per cent in 1922, 3.96 per cent in 1923 and 3.87 per cent in 1924, while the percentage for the roads as a whole has ranged from 2.91 to 4.33 in that time.

Referring to the improvement in service the statement says "the money outlay necessary to accomplish this has, up to the present time, been secured only by the carrying into effect of the most stringent economies in operation and the application of every known device to produce greater efficiency," and attention is called to the large increases in the cost of materials and supplies and in wages and taxes, which, with "many other expenses of operation required by statute or regulatory order, are beyond the control of these respondents to reduce."

Present indications afford no promise of substantial reductions in the cost of labor, materials or taxes in the transportation industry. That the railroads in the western district have been efficiently operated is fully demonstrated by the fact that they have been able to survive at all in the face of increases in operating costs beyond their control which are out of all proportion to the increases in freight rates now remaining in effect in the western district. Similarly, these statistics go far to demonstrate the absolute necessity for increased revenues if these railroads are to continue to furnish adequate transportation for the public need and are to avoid further receiverships.

It is shown that the railroads in the western district had already been called upon to make sacrifices in their rates and revenues "for the purpose of ameliorating the agricultural discontent which followed upon the decline of agricultural prices in 1920." After enumerating these various reductions in rates the statement continues:

These were some of the conditions which Congress knew when it passed the joint resolution. In the face of further representations by publicists and others that further rate readjustment would be of benefit to the country at large, Congress quite naturally has referred the whole matter to the Interstate Commerce Commission for its expert opinion on the merit or lack of merit of these representations. If there have been no such changes in conditions since the commission passed upon the rates on agricultural products and made its formal findings in respect thereto as to warrant lower rates in the future, then the rates on these products are now no higher than the "lowest possible lawful rates." If, by means of a rate readjustment as between commodities and localities, industry in the United States can be relocated so as to produce a greater national efficiency, Congress asks for the expert opinion of the commission as to how that relocation and improved efficiency can best be accomplished. If, on the other hand, the dangers incident to a general readjustment of industry are too great to counterbalance any possible gains, Congress desires the expert opinion of the commission on this matter. If the carriers cannot continue to maintain adequate transportation with an impaired earning power, if the rate structure of the country is generally satisfactory and well adapted to the best interests of commerce and trade, Congress desires to have the Interstate Commerce Commission say so.

In spite of the fact that the carriers as a whole in the western district have yet to make a fair return on the value of their properties, they have been required since the enactment of the transportation act, 1920, to absorb the losses incident to reductions in rates on descriptions of traffic moving in large volume. They have been called upon to bear by far the major part of the burden incident to agricultural discontent and its effect upon the freight rates of the carriers. These burdens have been cast upon them in spite of the fact that their freight rates were increased in a relatively lesser degree for the purpose of meeting the increased cost of operation incident to the World War, than were the rates of carriers in other portions of the United States. The relatively lesser increases in rates accorded the western district, together with the relatively greater reductions imposed upon them since 1911 is illustrated by comparison of the average revenue per ton per mile in the table on the next page.

If the rates prescribed in *Increased Rates*, 1920, *supra*, had remained in full force and effect throughout the period subsequent to that decision, it is estimated that the carriers in the western district would, for the years 1921, 1922, 1923 and 1924 combined, have received a gross revenue greater by $844,843,105. For the separate years these estimated losses by reason of rate reductions are:

1921	$29,337,687	1923	$302,845,567
1922	186,061,493	1924	326,598,358

The character of tonnage which is transported by carriers in the western district is such that reductions in the rates on agricultural products, including live stock, have laid a particularly heavy burden and made great inroads on the net railway operating income of those carriers. These losses of revenue have menaced their ability to continue to maintain adequate transportation service. Receiverships of railroads serving large areas of the western district have

AVERAGE REVENUE IN MILLS PER TON PER MILE

	1911	1915	1921	1924
United States	7.43	7.22	12.75	11.16
Eastern District	6.38	6.46	12.43	11.24
Southern District	6.94	6.39	10.81	9.48
Western District	9.39	8.78	14.22	12.09

RELATIVITY OF AVERAGE REVENUE PER TON PER MILE

(1911 Equals 100)

	1911	1915	1921	1924
United States	100	97.17	171.60	150.20
Eastern District	100	101.25	194.83	176.02
Southern District	100	92.07	155.76	136.60
Western District	100	93.50	151.44	128.75

already followed upon these drastic reductions, and serious financial difficulties are imminent in respect to others of the respondents. Railroads in the western district derive a relatively larger proportion of their freight revenue from the products of agriculture including live stock than do carriers in the other districts. Their situation in this respect is unique and a general inquiry into movement of traffic in other territories or in the United States as a whole fails to disclose the serious situation in which the western carriers find themselves.

The joint resolution of Congress does not undertake to repeal or modify in any respect the provisions of the interstate commerce act. In fact, the clear intent expressed in the joint resolution is to leave all of these provisions in full force and effect. It will be observed that the first paragraph of the joint resolution requires the commission to consider conditions prevailing in the several industries only "in so far as it is *legally possible* to do so." In the second paragraph the joint resolution provides for making rate changes only "*in accordance with law.*" In the third paragraph the direction is merely to make rates on the products of agriculture "at the lowest possible *lawful* rates." The effect of this is to leave in full force and vigor all of the provisions of the interstate commerce act. The affirmative duty still rests upon the Interstate Commerce Commission to initiate rates which, under stated conditions, will produce an aggregate annual net railway operating income equal, as nearly as may be, to the fair return provided by law for railroads as a whole within such rate groups as are designated by the commission. Also the whole underlying purpose of the interstate commerce act as declared by Congress and interpreted by the Supreme Court, remains unimpaired, that is, to insure the maintenance of an adequate system of transportation in the interest of the people of the United States considered as a whole. It is clear that Congress could not have authorized this commission to prescribe rates on any given class of traffic which would be so low as to be non-compensatory in respect to the services rendered. Not only must the joint resolution be construed in the light of these constitutional limitations, but it is clear from the language used that Congress had no intent to go counter to them.

In these circumstances, it is respectfully submitted that not only must the ultimate outcome of this investigation be the maintenance of an adequate system of transportation, but that the procedure itself by which the investigation is conducted must be such as not to destroy or impair such credit as these respondents now have. Even the procedure adopted by the commission should be such as to afford assurance to the investors in railroad securities and to the patrons of these transportation companies, that there is no possibility of action being taken which will in anywise diminish the net railway operating income of these respondents or jeopardize the transportation service, either temporarily or as an ultimate outcome.

The progress which has been made since the World War in rehabilitating the economic structure of this country can be set back in a moment by a threatened breakdown of the carriers. Car shortage, traffic congestion and other impairments of service result in acute financial distress. The threats of car shortage and traffic congestion necessitate a slowing up of business activity. Even an unfounded anticipation of widespread rate reductions has the same effect.

The returns from operation of carriers in the western district demonstrate beyond controversy that they are now operating under rates which fail to produce sufficient revenue from the standpoint either of the public interest or the statutory requirements of the interstate commerce act. The commission itself has indicated doubt as to whether or not they are being permitted to earn a return sufficient to meet the constitutional requirements of the Fifth Amendment. Thus in a recent decision, this commission said:

"In fact, as stated, carriers in the western group have been and are now earning considerably less than the prescribed return, and apparently less than the fair return to which they are entitled under their constitutional rights entirely independent of section 15a."

Since this was written, one of the largest railroads in the western district has passed into a receivership involving the largest receivership which this country has ever known from the standpoint either of railroad mileage or of the value of the property involved. Moreover, this statement of the commission was made in 1923 and the earnings of carriers in the western district for 1924 have been even less than for the preceding year. The situation of other carriers in this district is desperate. In spite of the most rigid economies of operation, they have been faced with a diminishing net railway operating income, while there has been no tendency on the part of governmental authority to reduce the tax burden or to be less stringent in respect to required expenditures for safety of operation. Neither is the shipping or traveling public ready, so far as we are advised, to accept any impairment of service. On the contrary, agricultural, commercial and manufacturing interests, require a steady increase of carrier facilities.

We submit that in these circumstances these carriers are not able to withstand, even for a limited period of time, a further curtailment in their revenues. The facts instead warrant increases substantial in their nature long prior to a time at which any reductions may be made.

It has been a favorite practice of proponents of rate reductions in the past to suggest that production will thereby be stimulated and revenue tonnage augmented. So far as the products of agriculture are concerned at the present time, it is doubtful even from an economic standpoint whether increased production is a desirable end to be sought. None of the governmental agencies which have been dealing with the agricultural discontent has proposed increased production as a solution. The decline in the number of head of live stock on farms on January 1 of the present year has been commended by governmental authorities as advantageous from an economic standpoint and as insuring increased prices for the product. Farmers of grain have been urged to limit their acreage under cultivation so as to avoid overproduction and thus to prevent the law of supply and demand working to their disadvantage.

No immediate prospect appears of a restoration to the western carriers of the tonnage lost to them by reason of the Panama Canal competition, nor do we understand that anything which the commission could do in the present investigation could bring about such a restoration. The extent of the tonnage lost by this competition may be indicated by the increase in the United States coastwise traffic passing through the Panama Canal. In 1921 the westbound tonnage was 1,026,664.5 tons, the eastbound 1,035,834 tons, a total of 2,062,498.5 tons, while in 1924 the westbound movement was 2,540,633 tons, the eastbound 10,018,316 tons, a total of 12,558,949 tons. The eastbound tonnage includes a large movement of oil and lumber, but even with those commodities completely eliminated the figures disclose a tremendous increase in the canal movement of traffic which was formerly handled by the all-rail carriers. This situation was not reflected in the figures which were before the commission when it decided *Increased Rates*, 1920, because at the time of that decision few of the boats which had left the canal service during the war period had returned to it. If the commission had anticipated the situation which has since developed it seems entirely clear it would have authorized larger percentage increase than it did in the freight rates in the Western and Mountain Pacific groups.

As further indicating the impropriety of suggesting augmented traffic as an offset to curtailment of revenue, the following figures showing the ton miles of all freight in the western district for the following years are significant:

Year	Ton miles, all freight Western District	Year	Ton miles, all freight Western District
1914	92,284,883,754	1919	130,175,633,193
1915	90,945,571,663	1920	144,862,929,681
1916	112,156,323,212	1921	108,658,099,373
1916*	123,250,722,123	1922	118,510,505,092
1917	138,128,066,447	1923	137,034,193,241
1918	142,335,128,414	1924	136,082,649,000

*Figures for preceding years are on basis of years ending June 30th; this and subsequent years are calendar years.

It will be observed that the pre-war upward trend seems now to have been halted. Even in 1923, when the ton-miles exceeded the year 1924, the carriers in the western district failed under the then existing rates to earn the fair return provided by the interstate commerce act. No one can reasonably predict in the light of the governmental recommendations to the agriculturists and the livestock producers to restrict production, and the ever increasing tonnage passing through the Panama Canal, that there can be any well founded hope for substantial increases in the volume of traffic, if any.

Two Electric Locomotives Coupled Together for Multiple Operation

Electric Locomotives for the South African Railways

Heavy trains, sharp curves and narrow gage track necessitate the operation of three locomotives in multiple

ONE of the latest developments in main line railway electrification is that of the Glencoe to Pietermaritzburg section of the South African Railway, a section which handles heavy mineral traffic down to the coast. The track has a route mileage of 171 miles traversing very hilly country with long and difficult grades. It reaches an altitude of 5,000 ft. above sea-level and runs down to the 2,200 ft. level at Pietermaritzburg—1,350 ft. drop in a distance of 14½ miles.

The overhead contact wire system is used at 3,000 volts and the power is converted at substations along the line from a three-phase overhead transmission system at 88,000 volts, 50 cycles. The Metropolitan-Vickers Electrical Co., Ltd., is supplying 78 combined passenger and freight locomotives.

In view of the limitations of the track, such as the gage, a minimum radius of curve of 300 ft., load per axle, etc., and heavy trains, a single locomotive unit is unsuitable. Consequently, three locomotives are coupled together, driven in multiple, and controlled from one driver's cab. In normal working three locomotives haul a freight train of 1,430 short tons to Pietermaritzburg, and on the return journey, one of 700 short tons. Wherever control of speed on a down grade is necessary it is done by the regenerative action of the locomotive alone.

LEADING DIMENSIONS OF A LOCOMOTIVE

Weight in working order	133,200 lb.
Weight of mechanical portion	78,800 lb.
Weight of electrical portion	54,400 lb.
Type of locomotive	A.A. + A.A.
Gage	3 ft. 6 in.
Motor equipment	Four 300 hp. motors
Total motor rating	1,200 hp. one hour rating
Tractive effort full field	21,200 lb. one hour rating
Tractive effort, maximum	40,000 lb.
Tractive effort full field	16,400 lb. continuous
Speed full field	23 m.p.h. continuous
Maximum safe speed	45 m.p.h.
Traction system	3,000 volts, d.c.
Brakes	Compressed air operated
Over-all length	43 ft. 8 in.
Over-all height of body (pantagraph down)	12 ft. 11.3 in.
Over-all width of body	9 ft. 2.25 in.
Diameter of driving wheel	4 ft. 0 in.
Fixed wheel-base	9 ft. 3 in.
Total wheel-base	30 ft. 11 in.
Distance between truck centers	21 ft. 8 in.
Weight per driving axle	33,300 lb.

Mechanical Features

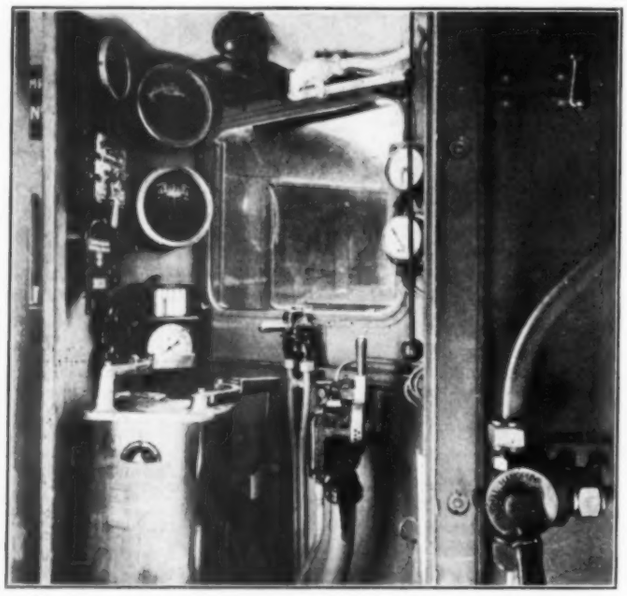
The body of the locomotive containing the electrical equipment and auxiliary gear is supported by two four-wheel trucks coupled together at their inner ends by an articulated joint, which allows free movement between the trucks. The buffing and draw gear, which is of the central type, is mounted directly on the trucks. The truck center plates are in three castings. The top, which is of steel, is rigidly bolted to the underframe and has a spherical seating which rests in a phosphor-bronze rubbing plate. The latter is held by a steel casting bolted to the center stay plates. On one truck the rubbing plate is held firmly in the casting while on the other it is free to move longitudinally. This feature is introduced to compensate for the varying positions of the trucks on curves. The body is relieved of all draw and buffing shocks since these are transmitted directly through the truck frames and the articulated joint. Steadying of the body and the trucks is carried out by side and end bearers which are spring-loaded.

The trucks are of the frame plate construction arranged with top and bottom stay plates at the ends and center. The transom besides supporting the truck center casting

also carries the motor suspension brackets. The bearing springs are of the laminated type with adjustable links and are placed above each axle-box. Compensation is provided for by beams pivoted on knife edges, which are attached to the centers of the truck frame plates.

The body of the locomotive is divided into five compartments. There is a driver's cab at each end containing all the necessary control gear, meters, gages, brake valves, etc., with which to control the locomotive. In the center is situated the high tension compartment containing all the high voltage control gear; access from the gangway is obtained by a sliding door which is both mechanically and electrically interlocked to prevent it being opened while the pantagraph is up. The spaces between the high tension compartment and the cabs at each end are occupied by the auxiliary gear which includes two motor-generator sets, each coupled to a blower, a compressor, exhauster, reservoirs containing air for the brakes, low tension control gear and pantagraphs, low tension switches, and contactors for controlling the auxiliary gear. The sections of the roof above these compartments and the roof above the high tension compartment are easily removed to lift out the heavy machinery and control gear.

The vacuum brake system is used on all the rolling stock; the locomotive brakes, however, are operated by



Interior of Drivers' Cab Showing Controls and Indicating Meters

compressed air, this system being found to be more suitable under the circumstances. Application of the vacuum brakes by means of a vacuum operated air valve will produce a proportional braking effect on the locomotive. For shunting purposes the driver has a compressed air brake valve which only applies the locomotive brakes. Air connection between locomotives is arranged in the main reservoir circuit to supply air to another locomotive in the event of failure of its compressor.

Sanding is arranged for multiple control. The sander valves are electrically operated and their control wire is included in the train line cable; thus all locomotives when coupled in multiple, sand simultaneously.

Main Motors

The main motors, four in number, are of the series wound type and are arranged for operation with two connected permanently in series. These motors have been designed to give the maximum output that can be obtained in the limited space. They are rated at 300 hp. Inspection covers are arranged above and below the motors at the commutator end to give accessibility to the brushes which can be easily inspected when the motor is in position.

The motor is arranged for forced ventilation. Air enters at the commutator end through a flexible air duct leading from the blowers, and flows through the machine in parallel paths leaving through openings at the pinion end.

Control Gear

Each locomotive has two pantagraph current collectors which are pneumatically operated. Spring control ensures that a uniform contact pressure is maintained with varying heights of the trolley wire. Air is fed to the pantagraph cylinders through an electrically operated valve which is controlled by a two-way switch in the driver's cab. The pantagraph control wires run through the train line cable, hence the driver has complete control over all pantagraphs from one cab. Each pantagraph is capable of collecting the current for all the motors. The master controllers, which are situated in the driver's cabs, are used for the motor combinations, series and parallel in forward and series in reverse, acceleration, and regeneration, respectively. All wires from the master controller connect to a terminal board at the back of each cab; the boards are connected together by two train line cables.

Auxiliary Gear

There are two motor-generators of 16 kw. and 28 kw. capacity respectively. The 28 kw. set is used for exciting the fields of the main motors when in regeneration. The 16 kw. set is used for supplying the control circuits, lights, exhauster, compressor, exciting the larger generator, cab heaters, and maintaining the battery on charge through an automatic battery cut-out switch.

Operation

One man has complete control of the locomotives when in multiple. On the first notch of the controller, connections are made for motoring with the four motors in series and all resistance in. The resistance is cut out step by step by moving the handle to the consecutive notching points. The control circuit is interlocked to prevent starting in motoring with parallel conections.

In regeneration all the four main motors are used as generators with separate excitation. For this purpose the 28 kw. motor-generator is used.

The driver is able to come into regeneration either with his motors connected in series or in parallel, the former over the lower ranges and the latter for the higher ranges of speed.

While regenerating the driver is able to make a partial application of the train brakes, the locomotive brakes being cut out by the control circuit. If, however, his application is too great the power circuit is immediately tripped and the locomotive brakes apply themselves automatically.

THE FIRST of the Ford Motor Company's airplanes which the company intends putting into operation between Detroit, Mich., and Chicago, for the transportation of freight, arrived in Chicago from Detroit on April 13 at 12 o'clock, two hours and 49 minutes after leaving Detroit. The first shipment contained freight for the Ford Motor Company's plant at Hegewisch, Ill. The company intends operating on a schedule which calls for a trip daily from Chicago to Detroit in the morning and a return trip in the afternoon.

The Railroads' Interest in Safe Locomotives*

A liberal maintenance policy as necessary for effective operation as for law observance

By A. G. Pack

Chief inspector, Bureau of Locomotive Inspection, Interstate Commerce Commission

THE history of railroad construction and of locomotive development through their various stages is as fascinating and as illuminating as any in the long annals of human progress. Less than a century ago the stage coach, the horse-drawn wagon, canal boat, and sailing ship were about the only means of transportation. Cities and communities in former days were dependent upon the immediate surrounding country for food and the necessaries of life. Today each village and hamlet draws the necessaries and comforts of life from the entire world.

While the railroads are capable of great good and are of inestimable value to society, they are also capable of great destruction to life and property. During the last 25 years records show that there were 218,830 persons killed and 3,308,935 others injured on the railroads, from all causes, or an average of one person killed every hour and one injured every 3 minutes 57 seconds. Of this number, 75,684 were employees killed and 2,809,592 were employees injured while in line of duty, or an average of one killed every 2 hours 54 minutes and one injured every 4 minutes 36 seconds.

During the last 20 years derailments caused a loss of $171,943,014; $8,597,150 per year; $716,430 per month, or $23,554 per day. During this period collisions caused a loss of $173,717,858; $8,685,393 per year; $723,781 per month, or $24,453 per day—a total loss of $345,650,872 during this period, or an average of about $48,007 per day. The data covering separately the damages resulting from locomotive accidents is not available for a twenty year period. However, during the last 8 years the loss resulting from accidents to locomotives has averaged more than one-half million dollars per year. These figures do not include damage paid by the carriers on claims arising from such accidents, the amount of which cannot be estimated, but would probably equal the damage to property.

The loss of life and limb and the destruction of property caused by railway accidents give rise to one of the most important industrial problems of the age. Where would these figures have mounted had it not been for the influence of the government urging every day and every hour safer and better conditions, sometimes to the temporary embarrassment of some of the railroads? It is generally admitted that the efforts put forth by the government have had a most beneficent influence in curtailing the loss of life and limb to railway employees and the traveling public. I believe that the efforts of the government along the lines of safety have been in the best interest of all concerned.

Locomotives the Heart of the Railroad

Let me repeat "Locomotives are the heart of the present railroad system of transportation." Without locomotives of modern design, properly constructed, maintained and operated, the railroads cannot perform their duties to the great public whom they are to serve. If locomotives are to be properly designed, constructed, and maintained, the railroads must have adequate, capable, and efficient mechanical organizations. When the mechanical organizations properly perform their duties, they render a service of inestimable value to the country. If motive power is not properly constructed and maintained, vast numbers of people are made insecure in life and are thwarted in their pursuit of happiness and prosperity. The railroads truly affect the prosperity, happiness and tranquility of the nation.

Let us consider what is involved in the maintenance of the locomotives on the railroads of the United States. There are at this time approximately 70,700 steam locomotives which represent an increase of about 40 per cent in number in the past 20 years, while the tractive force has increased about 140 per cent. The boiler is the heart of the locomotive and truly supplies the propelling power which moves the great bulk of the commerce of the nation from place to place, therefore, to have good motive power we must have good boilers. Thermic syphons, brick arches, stokers, feed water heaters and many other appliances have been applied in large numbers in order to reduce fuel consumption and the cost of transportation. Every one of these locomotives represents a big investment. It has been variously stated that the value of locomotives on the railroads in the United States is approximately 60 per cent of the total value of all the machinery, implements and tools used in all of the other industries of the nation.

During the year 1923 the railroads spent for locomotive repairs $559,280,737; for fuel about $529,219,236. There were about 550,000 people employed in the maintenance of equipment and stores on the railroads. When, in addition to this, we consider the investment in the shops, terminals and tools, the magnitude of the responsibilities resting upon the shoulders of the mechanical organizations is apparent, and it seems that further argument should not be necessary to convince any prudent man of the wisdom of affording the mechanical organizations full support in keeping with their duties and responsibilities.

Motive Power Department Subordinate in Position But Not in Importance

The word "subordinate" means: "To place or set in a position, order or rank below another person or thing; to make or consider as of less value or importance." The railway mechanical organizations may be and are subordinate in authority on the railroads but they are not subordinate in value or importance to any other organization. I feel that in more recent years the mechanical organizations of the railroads have not, at least in many instances, been given due recognition, credit and support, nor the authority over the work for which they are directly responsible, that they should have received. Not

*Abstract of a paper presented at the Western Railway Club, Chicago, April 20, 1925.

all of the operating officers have come to their positions with sufficient knowledge and intimate contact with the maintenance of motive power to understand what a locomotive should be and what should be expected of it. It is not their fault, but it is unfortunate for the railroads.

With such tremendous responsibilities resting upon an organization in meeting the demands of transportation, one directly responsible for the expenditure of such vast sums of money, one responsible to such a degree for the safety and efficiency of locomotive operation, and consequently the safety and efficiency of train operation, would it be too much to suggest that the directing officer of the mechanical organization be given full authority over his organization and expenditures, at least authority equal to that of the chief operating officer, and held strictly responsible for the results. It is for the transportation officials to make the specification—it is for the mechanical department to fill those specifications. It is for the transportation department to advise of the character and volume of traffic to be moved—it is for the mechanical department to furnish power for moving that traffic according to the specifications laid down. The mechanical department knows better than any other the capacity and the physical condition of every locomotive on its line and knows where it can serve to the best advantage after the requirements of the transportation department are made known.

A Tribute to Mechanical Officers

I have heard it said on a number of occasions in recent years that as a general proposition railway mechanical officers and employees of today are not as capable as they were in former years, with which statement I cannot agree. I believe that the mechanical departments of today, viewed as a whole, are equal, if not superior in skill and ability to any that ever existed. I am, by conditions frequently brought to my attention, led to believe that if there has been any retrogression in the mechanical organizations or if they have failed to perform their duties as they should have been performed, it is largely due to the fact that they have not been given the support and recognition that they should have been given by those in authority over them. I enjoy the privilege of knowing personally most all of the superintendents of motive power in the United States, and it is with pride that I speak of their ability. I have enjoyed the privilege of discussing mechanical matters with a great number of them and with a great number of transportation officers, and it is a sincere pleasure to say that I have the greatest respect for their integrity and ability in matters with which they are concerned.

It matters not how well the president may direct the finances of a railroad, how much business the traffic department may obtain, nor how well the transportation organization may plan the movement of trains, if the motive power is not ready and capable of delivering the traffic at its destination on scheduled time, the whole operation of the railroad is interfered with. The shipping and traveling public are seriously affected. The shippers' plans are upset and their patrons are discommoded. Passengers are vitally affected—their plans and the plans of those with whom they have engagements are discommoded. Transportation is the only thing that the railroads have to sell. It is their only source of revenue, therefore, if the best results are to be obtained, the service should be rendered promptly and economically, but it cannot be done if locomotives are not in condition to move promptly and on time. A few cents per mile added to the cost of necessary locomotive maintenance is more than compensated for by the reduced cost of transportation, a basic fact too often overlooked. I know of no one who can estimate, with any degree of accuracy, the cost of an engine failure. Engine failures seriously interfere with the plans of the operating department, they destroy the morale of those who are diligently endeavoring to move trains over the road on time, and contribute to some of the most serious accidents, involving loss of life and heavy property damage. Most engine failures and many of the most serious accidents are caused by small defects of an apparent insignificant nature; defects, the repairs to which are most frequently minor. It is the little things that grow imperceptibly into big ones. If the little defects are taken care of, the big ones are usually provided against.

Why Employment Should Be Stabilized

There is nothing which so adversely affects the proper and economical maintenance of equipment as to disrupt the mechanical organizations at frequent intervals, or to fluctuate its personnel with every temporary fluctuation in traffic. Equipment can not be properly and economically maintained if repairs are neglected until the busy season comes. It is then that it should be in revenue service and not in the shop. It is then that the transportation department is pressing for motive power and the shippers are clamoring for cars, therefore, in keeping with good sound business principle, it should be repaired during dull periods and be available when the rush comes.

To cut the mechanical organization is to cut one of the most vital organs of the railroad, because to cripple motive power means to cripple transportation. Moreover, one of the most important requirements in the matter of maintenance of equipment is to have a corps of competent, steady, reliable and contented employees. Discontentment and confusion among men are bound to ensue when employment is uncertain and irregular, and this is particularly true when it is known that important repairs are being deferred. Steady employment at remunerative wages brings satisfaction that is hard to disrupt. While on the other hand, when men are treated as machines and laid aside without regard to consequences and without a good sound reason, it brings unrest, disloyalty and hardship not only upon the men and their families, who are thrown out of employment, but upon everyone connected with the railroad organization. I believe that some are mislead in believing that this unrest and resulting inefficiency is confined to those in the more humble positions. We are all human and our neighbors cannot be discontented and subjected to unsafe conditions and hardships without ourselves being more or less affected. Neither can those in the more humble positions on the railroads be affected without those in authority being similarly affected, although the latter may not give outward expression of their feelings. I believe that better results can be obtained and savings affected if the mechanical organizations can be stabilized and have their appropriations for betterment and labor fixed in advance for a period of not less than one year, to be expended in approximately equal allotments throughout the year so that a definite plan may be followed. I appreciate that revenue cannot be disregarded in making expenditures, but with careful consideration and foresight, it seems that they can be anticipated with sufficient accuracy to provide more uniform employment and practices with respect to maintenance of locomotives. The required amount of money must be provided and must be spent during the year whether spasmodically or uniformly.

The Handicap of Inadequate Shops and Poor Material

The mechanical departments of many of the railroads are further seriously embarrassed by being compelled to maintain modern equipment in obsolete shops with anti-

quated machinery, inadequate tools, insufficient material, and material of inferior quality. Locomotives have increased in size, tractive effort and complexity, and have had many new and complex appliances added which demand close attention if they are to render efficient and economic service. Notwithstanding, we find large modern motive power being maintained in the same old shops and with the same old tools that were provided years ago for the lighter equipment. Locomotives, shops, and facilities should be modernized if the railroads are to keep abreast with modern times and render the most efficient and economic service. It is not uncommon to find boilers being washed and extensive repairs being made to locomotives and cars in the most inclement weather out of doors because the equipment has outgrown the housing facilities and, in many instances, where housing facilities have never been provided. In my opinion making repairs under such conditions is false economy.

The quality of material used in the construction and repair of equipment is of vast importance. Quality and the service required, as well as the initial cost, should be given careful consideration. When inferior material, or material unsuitable for the use to which it is put, is used, the service is unsatisfactory and it is liable to fail at a time and in a way that will result in serious loss and damage. Purchasing departments too frequently buy improper and inferior material because the first cost is less, contrary to the judgment of the mechanical officials whose judgment is based on years of practical experience. The use of inferior and improper material is false economy; it costs just as much in time, labor and money, frequently more, to fabricate poor material as it does to fabricate the good, while the service rendered is far less satisfactory and the ultimate cost far greater.

It is important that sufficient repair parts and material be kept on hand at places where repairs are made, otherwise, necessary and prompt repairs will not be made and the equipment will be returned to service in a defective condition because of the demand for power. When a locomotive is compelled to stand idle awaiting repair parts, it results in a monetary loss and delay to traffic. The removal of parts from one locomotive to make repairs to another in order to keep it in service is a waste of time and money, yet it is astonishing to see how often this practice is followed.

The Results of a Liberal Maintenance Policy

As an illustration of some of the things regarding which I have been talking, I am going to relate two of the many instances which have brought to my attention from time to time. Some time ago I had occasion to call on the president of a large system and bring to his attention the fact that the law governing the inspection, testing and repair of locomotives was not being complied with. He advised me among other things, that when he came to that line he found second-hand material being purchased and used in making repairs to locomotives, especially mentioning second-hand flues. This he immediately stopped. This president appointed a man on his personal staff with authority over mechanical matters and, from the records and reports which are brought to my attention, the good results being accomplished are phenomenal in the way of improving the condition of motive power and the handling of trains as well as in the reduction in the number of accidents and casualties to persons.

About four years ago, in order to avoid being compelled to take action not desired in applying the more punitive measures provided by the law, I called on the president of a large railroad system operating over 2,000 locomotives and directed to his attention, with the superintendent of motive power, the condition in which locomotives were being operated and some of the causes therefor, which were the failure to provide sufficient material, the use of material of inferior quality, roundhouses under-manned, and shops under-manned or closed at a time when they should be operating at full capacity. He informed the superintendent of motive power in my presence that from then on he would have sufficient money provided and would expect that the conditions would be immediately improved, but that he was going to hold him strictly responsible for the results.

In 1920 this company had 621 engine failures due to leaky flues and made 84,740 engine miles per failure from this cause. In 1923, the number of engine failures had been reduced to 130 and the miles per engine failure from this cause had been increased to 412,529. During 1924, there were reported 47 engine failures and miles run per engine failure were 1,620,910. What does this reduction in the number of engine failures from leaky flues mean in the cost of fuel alone? Can it be fairly estimated? Can the value of improved transportation be fairly estimated? Miles per engine failure from all causes have been increased from an average of about 30,000 miles per failure to about 147,000 miles. This certainly means improved transportation, better satisfied travelers and shippers—boosters instead of knockers—better satisfied employees, better satisfied mechanical and operating officials, and a great return on the money invested. These improvements have been made by the same mechanical organization throughout, not because of increased ability in handling mechanical matters, but because of sufficient money given it by the chief executive of this railroad.

Relation of Maintenance and Safety

I fully appreciate that it is not within my province to interfere in the management of any railroad. The law gives me no authority in such matters and it may be considered by some as presumption on my part in attempting to discuss such things. There may be some of you who ask in your own mind why I, as Chief Inspector of the Bureau of Locomotive Inspection, whose duty it is to see that carriers make inspections and repairs and keep locomotives in condition to meet the requirements of the law and whose primary purpose it is to promote the safety of railway employees and the travelers thereon, should dwell at such length on matters of this kind. It is because there is an inseparable relation between locomotive maintenance and the safety of operation. Every engine failure carries with it the potential of a serious and fatal accident, therefore, I feel that we are vitally interested. Moreover, it is my desire to co-operate with the railroads and their mechanical and operating organizations in every way consistent in reducing the number of accidents and personal injuries, and to improve transportation facilities in every way consistent.

The word "co-operation" is defined as "the act of laboring together with others for a common end." There are two kinds of co-operation, simple and complex. "Simple co-operation" is when several individuals help each other in the same employment. "Complex co-operation" is when they do so in different employments.

M. J. GORMLEY, chairman of the Car Service Division, A. R. A., announces that a meeting will be held at the Copley-Plaza Hotel, Boston, on Friday, May 8 at 11 a. m. for the purpose of organizing a Shippers' Regional Advisory Board for the New England States. A committee of 16, consisting of prominent officers of the leading railroads, has been appointed to confer with representatives of the mercantile community at this meeting.

Hoch-Smith Resolution Opposed

THE Hoch-Smith resolution recently passed by Congress outlining a policy in rate making to be pursued by the Interstate Commerce Commission and directing that body to make a thorough investigation of the railroad rate structure and to make readjustments therein deemed necessary, is being opposed by numerous organizations throughout the United States. The Associated Traffic Clubs of America have adopted a resolution, proposed by F. L. Speiden, president of the Louisville Transportation Club, and other members of a special committee of the Traffic Clubs, and have gone on record as condemning the theory of making rates for the purpose of aiding any industry that for the moment might not be in a prosperous condition.

The Associated Traffic Clubs accept entirely the provision that carriers must have a fair return upon the value of their properties held for and used in the service of transportation. The association believes the Interstate Commerce Commission should be uninstructed and unfettered in its administration of the Transportation Act. It deprecates the recent trend of Congress in substituting its judgment, untrained technically, for that of the commismission and its staff in the highly technical problems involved in the making of freight rates and confidently believes that this trend if pursued will proceed to a breakdown of confidence in the commission's decisions and in the equity of stability of our rate fabric, and finally will jeopardize some of the prime essentials of private ownership. In addition, it deplores rate making by indirection.

This declaration of policy was commended to the attention of other traffic associations, the National Industrial Traffic League, American railway executives, the Railway Business Association, the Chamber of Commerce of the United States, the President of the United States and the senators and representatives in Congress.

Other organizations besides the Associated Traffic Clubs of America are endeavoring to prevail upon the Chamber of Commerce of the United States to oppose any move on the part of Congress to usurp the rate-making authority now invested in the Interstate Commerce Commission by law. To accomplish this purpose local organizations are adopting resolutions urging the Chamber of Commerce to oppose any attempt by Congress to legislate upon such matters. The Chicago Association of Commerce on April 10 passed and submitted to the Chamber of Commerce of the United States such a resolution for adoption at its annual meeting to be held at Washington in May. The Shippers' Conference of Greater New York has likewise adopted a similar resolution and the National Industrial Traffic League is considering similar action. The resolution adopted by the Chicago Association of Commerce in part is as follows:

WHEREAS, There appears to be a growing tendency to regulate freight rates and passenger fares by legislative enactment, in response to public clamor instead of leaving such questions for the judicial determination of the Interstate Commerce Commission by orderly procedure; and

WHEREAS, Experience has demonstrated that uncertainty in transportation matters has a detrimental effect upon business generally; and

WHEREAS, It is obviously impracticable, if not utterly impossible for legislative bodies to give the intricate questions involved in the rate structure of the country the time and study required to assemble all the pertinent facts necessary to a just determination of the issues involved;

BE IT THEREFORE RESOLVED, By the Chamber of Commerce of the United States, that the regulation of our common carriers must be vested in a properly constituted administrative body, rather than in the legislative branch of the Government; and

BE IT FURTHER RESOLVED, That in the administration of the act to regulate commerce, no political influence should be exercised upon the administrative body by either the executive or legislative branches of the Government.

Freight Car Loading

WASHINGTON, D. C.

FREIGHT car loading in the week ended April 11 amounted to 917,284 cars, a decrease of 5,091 cars as compared with the week before, an increase of 36,347 cars as compared with the corresponding week of last year, and a decrease of 29,987 cars as compared with 1923. Increases as compared with last year were reported in all districts except the Central Western, which showed a considerable reduction in grain loading, but reductions as compared with last year were shown in the total loading of grain and grain products, livestock and coke. Coal loading, although only 138,065 cars, showed an increase of 10,361 cars, and miscellaneous freight showed an increase of 26,458 cars. As compared with 1923 the principal reductions were in the loading of grain and grain products and coal, while large increases were shown in merchandise and miscellaneous. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

REVENUE FREIGHT CAR LOADING

Week Ended Saturday, April 11, 1925

Districts	1925	1924	1923
Eastern	220,141	217,890	242,403
Allegheny	191,200	187,427	212,729
Pocahontas	44,091	35,356	36,021
Southern	154,489	136,057	143,343
Northwestern	113,998	113,566	118,653
Central Western	128,640	129,328	138,080
Southwestern	64,725	61,313	56,042
Total Western	307,363	304,207	312,775
Commodities			
Grain and grain products	31,108	37,625	39,330
Livestock	25,114	27,768	29,686
Coal	138,065	127,704	182,602
Coke	11,306	11,814	16,014
Forest products	78,617	76,766	77,343
Ore	14,609	14,402	18,293
Mdse., l. c. l.	260,760	253,611	238,825
Miscellaneous	357,705	331,247	345,178
Total	917,284	880,937	947,271
April 4	922,375	861,990	896,375
March 28	931,395	907,389	936,274
March 21	909,363	908,390	916,818
March 14	924,149	916,762	914,116
Cumulative total, 15 weeks	13,604,894	13,330,938	13,160,386

The freight car surplus for the first week in April showed a decrease of 701 cars to 344,258 cars, including 184,461 coal cars and 113,302 box cars. For the same period the Canadian roads had a surplus of 28,950 cars, including 25,100 box cars and 200 coal cars.

Car Loading in Canada

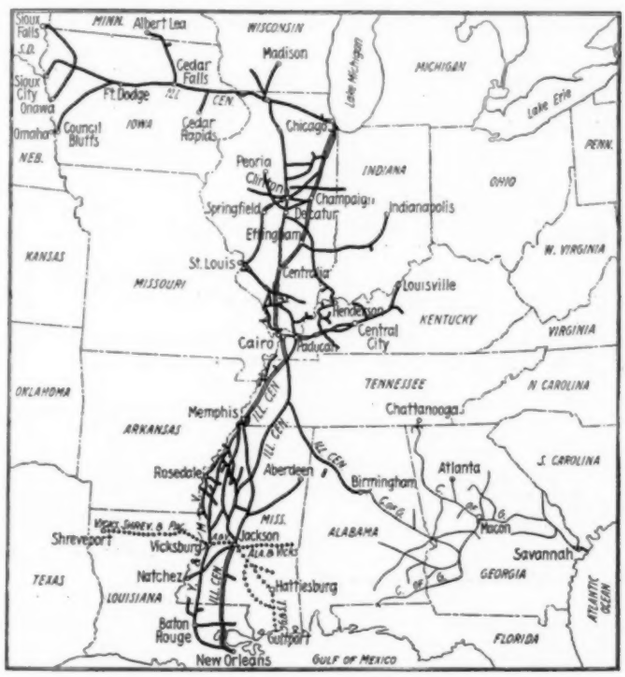
Revenue car loadings at stations in Canada for the week ended April 11 showed a decrease from the previous week of 6,135 cars, the total for the former being 45,263 cars. Loadings in the East were lighter by 4,467 cars and in the West by 1,668 cars. The Good Friday holiday figured largely in the decline. Grain loading dropped in both divisions. Compared with the same week last year there was a decline of nearly 8,000 cars, the largest decrease being in coal which fell off 3,721 cars, grain loading declined 1,022 cars and lumber 1,023 cars.

	Total for Canada			Cumulative totals to date	
	Apr. 11	Apr. 4	Apr. 12		
Commodities	1925	1925	1924	1925	1924
Grain and grain products	4,459	6,287	5,481	95,132	115,507
Live stock	2,081	2,494	2,314	33,840	32,470
Coal	1,914	2,465	5,635	73,165	74,045
Coke	249	275	176	4,657	3,866
Lumber	3,325	3,514	4,348	44,342	50,595
Pulpwood	2,419	2,933	3,362	58,042	59,548
Pulp and paper	2,032	1,993	1,928	31,665	32,221
Other forest products	2,534	2,548	2,665	47,903	46,442
Ore	941	1,279	1,307	17,302	14,524
Merchandise, l. c. l.	14,590	16,322	15,088	211,468	195,437
Miscellaneous	10,719	11,288	10,766	150,834	156,941
Total cars loaded	45,263	51,398	53,070	768,350	781,596
Total cars rec'd from connections	32,362	33,905	33,976	499,530	523,039

Reduced Expenses Save Illinois Central Net

Earns in 1924 *largest net after charges with single exception —Equivalent to* $12.39 *on common stock*

THE Illinois Central normally derives about two-fifths of its traffic from the transportation of coal. It secures such traffic from mines in four coal areas—southern Illinois, Indiana, western Kentucky and the Birmingham district of Alabama. Of these, from the Illinois Central's point of view, the mines in southern Illinois are much the most important. Readers of the *Railway Age* are familiar with the adverse conditions in that strongly unionized district as a result of the high wage scale established by the Jacksonville Wage Agreement. These mines are now meeting the competition from



The Illinois Central

the non-union mines in West Virginia and Kentucky in areas which they formerly most largely supplied. This has resulted in great benefit to the railways in the Pocahontas district and the opposite for the carriers which derive a large part of their revenue from the carriage of Illinois coal. Realizing these conditions and the large proportion of the traffic of the Illinois Central constituted by coal, one might have had good reasons to fear for the prosperity of that carrier during the past year.

It could not be said exactly that the Illinois Central had an entirely satisfactory year in 1924. It did, however, succeed in coming through the year with a 13 per cent increase in net railway operating income and with the largest net income after charges of any year in its history with the single exception of 1917. This result was made possible not through increased traffic but through substantially decreased expenses of which the decrease in maintenance of way expenses was particularly noteworthy.

20.4 Per Cent Decrease in Coal

In 1924 the Illinois Central's traffic in bituminous coal was 20.6 per cent less than in 1923, and instead of constituting from 35 to 45 per cent of the road's total revenue tonnage, as is normally the case, coal constituted only 32 per cent. For the year the Illinois Central moved 7.2 per cent less revenue tons and 11.56 per cent less revenue ton-miles. The decrease in freight revenue was 7.39 per cent. With a decrease of 4.80 per cent in the number of passengers carried one mile, there was a decrease of 7.17 per cent in the number of revenue passengers carried. For the year, the road's total operating revenues of $173,838,132 as compared with $186,763,167 in 1923, showed a decrease of $12,925,035 or 6.92 per cent.

Among the several striking features of Illinois Central operations in recent years, has been the somewhat remarkable manner in which it recovered from the adverse conditions of federal control, particularly with reference to the substantial reductions it succeeded in making in operating expenses. The reduced traffic of 1924 required further progress in this direction. The result was shown in a decrease of 10.66 per cent in railway operating expenses. These totaled in 1924, $134,024,921 as compared with $150,023,276 in 1923, a decrease of $15,998,356 or three million more than in the case of total operating revenues. This saving was carried down to net railway operating income, which totaled in 1924 $28,102,073, as compared with $24,863,440 in 1923, or an increase of $3,238,634. There was the usual substantial increase in railway tax accruals totaling $1,674,062 or 21 per cent. This increase was more than compensated for by a change from a debit equipment rent balance of $1,361,784 to a credit balance of $613,236.

Net After Charges

In 1924, net income after charges totaled $16,248,558, equivalent, after allowance for 6 per cent dividends on the $20,997,480 preferred stock, to $12.39 a share on the $120,826,792 outstanding common stock. Net earnings in 1923 were $15,485,074, equivalent, after 6 per cent dividends on the $10,702,200 preferred stock outstanding at the end of that year, to $13.55 a share on the $109,522,091 common stock then outstanding. The 1924 net income available for dividends, $16,248,558 as noted, was the largest net income that the Illinois Central has ever reported with the exception of the year 1917, in which year net after charges totaled $17,627,202. The 1924 net income exceeded that of 1923 by $763,484. The reason that the three million dollar increase in net operating income was not carried down to net after charges is explained largely in the increased interest on funded debt and to a decrease in non-operating income, due, primarily, to the non-receipt of dividends from the Illinois Central's coal subsidiary, the Madison Coal Company, which in 1923 paid the parent company $1,000,000 in dividends.

The management was confronted with the realization

that the operations of the mines in the Illinois coal district were handicapped, and it was natural that it should take steps to meet that fact. The facts show that the road reduced its operating expenses, as above noted, $15,998,-356 or 10.66 per cent. This gave the property an operating ratio of 77.10 per cent as compared with 80.33 per cent in 1923, and the lowest figure reported since 1917. The maintenance of way expenses were decreased $5,091,-962 or 17.55 per cent due, in the main, to decreased outlays for maintenance work and in part to a decrease in the account "Equalization—Way and Structures" in connection with the adjustment of maintenance reserves carried over from 1923. While a decrease in maintenance of way expenses of 17.55 per cent is very substantial it seems somewhat less important in the case of the Illinois Central because in 1923 the charges to this account were 18.83 per cent in excess of those of 1922, and it was largely due to this fact that the Illinois Central did not report larger net earnings in 1923 than it did, as was noted in these pages, at that time.

There was a decrease of $4,378,114 or 10.01 per cent in maintenance of equipment partly for the reason that in 1923 expenses chargeable to this account were slightly higher than normal due to the catching up after the shop strike and also because of the fact that there was a substantial reduction in business in 1924. This was offset in part by increased charges for depreciation due to acquisitions of new equipment. Transportation expenses showed a decrease of $6,529,339 or 9.34 per cent.

Additions and Betterments

The conditions that led the Illinois Central management to cut maintenance of way expenses so sharply also led it to slow up slightly on the ambitious program of additions and betterments which has been under way for the past few years. It was announced at the beginning of the year that the capital expenditure program for 1924 would total about $42,000,000. As a matter of fact, it finally did total for the year $28,970,441. This compared with $50,729,721 in 1923. The 1923 expenditures, however, were unusually large; they were practically double those of any previous year and in excess of the expenditures—in themselves substantial—of the three years, 1920, 1921 and 1922 combined. The 1924 capital expenditures furthermore were the greatest for any year with the single exception of 1923. Set against the fact that the Illinois Central did not spend quite as much in 1924 as originally intended is the record with reference to the road's orders for equipment in 1924. It will be remembered that in 1924 there was a substantial equipment buying movement in the first quarter of the year and another in the latter part of the year beginning in September. The Illinois Central was one of the first carriers to start the ball rolling in the latter case and before it was through it had purchased 50 locomotives, 6,400 freight cars and 281 passenger cars. For 1925 the road expects to spend for capital improvement about $42,000,000 of which the equipment mentioned constitutes $17,000,000.

This matter of capital expenditures is probably the most interesting of any of the several factors of interest that might be discussed in connection with the Illinois Central. The plain facts of the situation are that in recent years that carrier has had a truly phenomenal growth. The road is, first of all, the leading north and south carrier. It competes for north and south business with the Louisville & Nashville, the Missouri Pacific, or the Queen & Crescent route of the Southern, but is favored as compared with them by having the short line and a water-level route. The Illinois Central itself has a total of 4,875 miles of line. The Yazoo & Mississippi Valley, controlled by entire ownership of capital stock, has an additional 1,380 miles, making a total—excluding duplication of mileage—of 6,243. This mileage does not include the Central of Georgia, all the stock of which is owned by the Illinois Central but which is operated separately.

The main stem of the Illinois Central extends from Chicago via Cairo, Memphis, Tenn., and Jackson, Miss., to New Orleans. Other lines reach St. Louis, Mo., Indianapolis, Ind., Louisville, Ky., Birmingham, Ala., etc., and the line to Sioux City, Iowa, since supplemented by branches to Sioux Falls and Council Bluffs, was one of the first lines to reach the Missouri from the east. The Yazoo & Mississippi Valley parallels the Mississippi river south of Memphis. Between Chicago and New Orleans the Illinois Central is double tracked except between Memphis and Jackson, where paralleling lines of the Yazoo & Mississippi Valley are available. Up to this year it used to be the Illinois Central's custom to report the earnings from its own operations separately from those of the Yazoo & Mississippi Valley, the net income from which accrued to the parent company under other income. In the 1924 annual report the earnings of both the properties are combined for the first time and all of the figures in this article except where otherwise noted, cover the combined system.

ILLINOIS CENTRAL. OPERATING RESULTS, SELECTED ITEMS, 1916 TO 1923

Year ended Dec. 31	Mileage	Revenue tons carried	Revenue ton-miles	Average haul	Revenue per ton-mile cents	Revenue train load	Car load	Total operating revenues	Total operating expenses	Operating ratio	Net operating revenue	Net after charges
1916	4,767	37,046,832	9,156,871,000	247	0.540	550	24.09	$73,740,266	$52,843,149	71.66	$20,897,117	$17,627,202
1917	4,766	42,460,189	11,230,070,000	264	0.520	623	26.94	87,144,787	62,339,834	71.54	24,804,952	15,191,326
1918	4,778	45,853,934	12,441,048,000	271	0.637	639	28.73	107,320,261	90,252,035	84.10	17,068,226	10,956,702
1919	4,793	38,245,714	9,994,435,000	261	0.759	649	27.01	107,886,835	99,262,712	92.01	8,624,123	12,168,919
1920	4,799	49,233,079	13,724,283,000	279	0.774	660	30.06	145,154,272	134,181,514	92.44	10,972,758	13,571,122
1921	4,799	40,415,089	11,084,094,000	274	0.966	634	28.62	141,127,066	116,852,333	82.80	24,274,733	9,700,794
1922	4,784	47,670,424	14,151,817,000	297	0.847	700	28.14	154,860,387	119,129,269	76.93	35,731,118	16,089,676
1923	4,840	55,110,674	15,069,986,000	273	0.843	681	28.41	165,626,982	132,429,231	79.96	33,197,751	15,485,074
ILLINOIS CENTRAL, INCLUDING YAZOO & MISSISSIPPI VALLEY, 1920 TO 1924												
1920	6,170	54,055,817	15,777,745,815	292	0.804	670	29.74	$173,278,447	$159,872,727	92.26	$13,405,720	$13,571,122
1921	6,170	44,637,466	12,072,608,653	270	1.015	629	28.55	161,886,474	135,163,190	83.49	26,723,284	9,700,794
1922	6,154	52,002,324	15,085,299,196	290	0.891	686	27.98	174,765,348	135,973,884	77.80	38,791,464	16,089,676
1923	6,209	60,519,065	16,151,798,440	267	0.884	673	28.28	186,763,167	150,023,277	80.33	36,739,890	15,485,074
1924	6,218	55,615,045	14,284,712,470	257	0.925	674	26.68	173,838,132	134,024,921	77.10	39,813,211	16,248,558

Remarkable Increase in Traffic

The Illinois Central has a diversified traffic. In 1924, the classification of commodities showed the following percentages of total revenue tons carried; products of agriculture, 13.84 per cent; products of animals, 2.54 per cent; products of forests, 15.47 per cent; products of mines, 46.22 per cent; manufactures and miscellaneous, 18.21 per cent, and l.c.l., 3.72 per cent. A feature of Illinois Central operations is its traffic in tropical fruits received at New Orleans and transported north to St. Louis and Chicago. One of the features of railway operation in this country in recent years has been the remarkable increase in the traffic of the roads serving the South and the Southwest. The Illinois Central lying midway between

the two districts—its figures are reported with those for the southern district—has benefited greatly, in addition to which it has been favored by the operation of the Panama canal, the service through which it supplements by having the short line between Chicago and New Orleans. In 1923, in which year the road carried the largest business in its history, the Illinois Central moved about 65 per cent more revenue ton-miles than in 1916, an average increase of not quite 10 per cent each year. The 1923 traffic was 3½ times the traffic moved in 1902.

Additions and Betterments Equal $150 Per Share in Eight Years

Some idea of the elaborate character of the improvement program which has been carried on for the past few years is contained in the information that the charges for additions and betterments in the eight years, 1917 to 1924, have totaled $188,000,000, equivalent to $150 a share on the common stock outstanding on December 31, 1924. Of the total of these expenditures about one-half has been for equipment.

ILLINOIS CENTRAL (INCLUDING YAZOO & MISSISSIPPI VALLEY)

COMPARISON OF OPERATING STATISTICS—SELECTED ITEMS—1920 TO 1924

Unit	1920	1921	1922	1923	1924
Average mileage operated..	6,151	6,151	6,136	6,190	6,200
Net ton miles (millions)..	17,489	13,745	16,753	18,359	15,833
Car miles per car day....	40.9	33.0	38.7	41.1	38.4
Net tons per loaded car..	29.7	28.5	28.0	28.3	26.7
Per cent loaded to total car-miles	66.2	62.4	65.4	64.2	64.1
Net ton-miles per car day..	805	588	707	746	657
Freight cars per train.....	38.7	41.2	42.7	43.1	44.7
Gross tons per train.....	1,565	1,596	1,664	1,681	1,722
Net tons per train.....	743	715	761	764	747
Train speed-miles per train hour	10.9	11.8	11.3	11.3	11.8
Net ton miles per train hour	8,070	8,455	8,611	8,600	8,813
Lb. coal per 1,000 gro. ton-miles	166	162–144*	145	148	139
Loco. miles per loco. day..	80.5	65.7	74.7	79.3	66.7
Per cent frt. loco. unserv..	13.1	11.9	10.9	13.1	13.8
Per cent frt. cars unserv..	5.3	8.9	8.4	6.0	5.3

*Corrected figure.

Several important improvements are now in progress. The new line from Central City, Ky., to Dawson Springs, 27 miles, was completed and placed in service on December 1, 1924. The new 172-mile cut-off between Edgewood, Ill., and Fulton, Ky., is in process and about $5,000,000 will be expended on it in 1925. Work is continuing on the new Markham yard between Harvey, Ill., and Homewood. During 1925, about $10,000,000 will be spent in continuation of the Chicago terminal improvement work, exclusive of the money to be spent for the new electric multiple-unit equipment ordered last November. At the end of 1924, the Illinois Central operated 25 miles more second track than at the beginning, 13 miles more of additional main track and 97 more miles of yard track and sidings. During the year, the construction of second track from Spaulding, Ill., to Springfield and from Clarks, Ky., to the Tennessee river was completed and a second main track between Wilderman Jct., Ill., and Layfield, 39 miles, was begun. Another important piece of work also begun in 1924 was the installation of automatic train control between Champaign, Ill., and Branch Junction, 122 miles. During 1925, the road expects to spend $4,000,000 for shop facilities at no less than 10 points and $1,250,000 additional for machine tools. The significance of these items is that they are selections of the more important in the extended list of projects included in the Illinois Central improvement program.

It has been noted that in the past eight years the Illinois Central has spent some $90,000,000 for equipment additions and betterments, and that in 1925 it expects to spend some $17,000,000 more in payment for the equipment ordered last fall. In the past few years, the road has made most substantial increases to its motive power and rolling stock. In the past eight years, for example, it has acquired 522 locomotives whereas in these years it retired but 182. The installations of new freight cars have substantially exceeded retirements but not in the same proportion as in the case of locomotives.

Financing with Stock

The Illinois Central is not favored like the Santa Fe with reference to the means that it has had of financing its improvement program. The Santa Fe, it will be remembered, has financed an improvement program amounting in a five-year period to about $150,000,000, equivalent to about $64 a share on the common stock, without issuing any new stock, bonds or even equipment trusts. The Illinois Central, however, has at least been able to finance a proportion of its improvement program by the sale of stock, which is something that can be said of few railroads. The stockholders authorized in 1922 an issue of $50,000,000 prefered stock on the basis of which authorization $10,929,000 six per cent preferred stock was sold during 1922 and an additional $10,952,180 in 1923. In 1924, it was found possible to sell common stock and $10,646,700 was so sold. The company has financed its purchases of equipment principally through equipment trusts. The sale of stock has, in a measure, corrected a tendency for funded debt to increase unduly in proportion to total capitalization but notwithstanding the financing through stock, the funded debt as of December 31, 1924, was double what it was on December 31, 1916, and constituted 69 per cent of the total capitalization as compared with 58 per cent at the end of 1916. Interest charges for the past three years have been earned twice over.

Acquisition of New Lines

As this is written the Illinois Central is waiting approval from the Interstate Commerce Commission for three important new acquisitions to its lines. One is the Gulf & Ship Island, the entire capital stock of which was purchased last November. The other two are respectively, the Alabama & Vicksburg and the Vicksburg, Shreveport & Pacific, the lease of which to the Illinois Central has already been approved by the stockholders of these roads. The Gulf & Ship Island connects with the Illinois Central at Jackson, Miss., and extends from there to Gulfport, Miss., with branches from Maxie to Mendenhall and from Saratoga to Laurel. The road operates 307 miles of line and in 1923 nearly 60 per cent of its traffic was products of forests. The Alabama & Vicksburg operates a line from Meridian, Miss., to Vicksburg, and the Vicksburg, Shreveport & Pacific extends from there to Shreveport, La., there being a transfer across the river at Vicksburg. The two lines aggregate 313 miles of line. About one-quarter of their traffic is lumber and they also handle a sizable amount of petroleum. Not the least important factor of interest in connection with the acquisition is that this is the first mileage that the Illinois Central has had west of the Mississippi south of St. Louis.

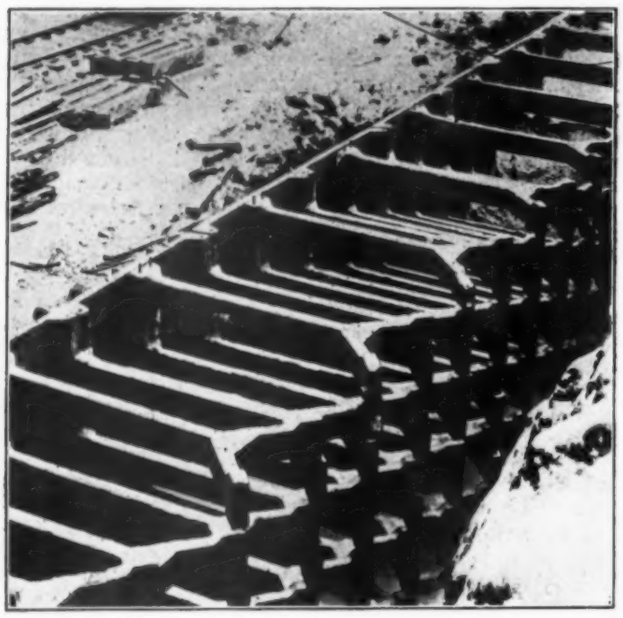
CLEAN STATIONS.—Inspection of stations on the Trenton division of the Pennsylvania showed recently 100 per cent at many places. The inspection covered irregular practices, station cleanliness, release and forwarding of foreign cars and general courtesy. The check showed: Number of stations where no irregular practices were recorded, 102; number of stations showing a 100 per cent condition from a cleanliness standpoint, 98; stations showing a 100 per cent condition covering prompt release and forwarding of foreign cars, 100; stations showing a 100 per cent condition from a courtesy-to-the-public standpoint, 100. The check included 102 stations.

New Concrete Cribbing Looks Like Solid Wall

By A. Norman Laird
Assistant Engineer, Grand Trunk, Detroit, Mich.

IN connection with the Grand Trunk's grade separation work at Detroit, Mich., which is being effected by depressing the tracks, the use of concrete cribbing presented itself as an effective and economical means of supporting the slopes in certain parts of the railway cut, and after a long period of experimental work the writer developed a new type of pre-cast wall construction which retains the advantages of concrete cribbing but secures the essential characteristics of cast-in-place concrete as to strength and finished appearance. The noteworthy feature of this new construction is that it presents a closed face on the outer side and gives the appearance of a solid wall constructed of concrete blocks.

It consists essentially of two members; a face member or stretcher, and an anchor member or header, the design



The V-Shaped Headers Are Self-Supporting at the Rear

being such that the headers are not exposed on the face of the wall, but are securely attached to the rear of the stretchers by an ingenious arrangement of connecting lugs.

In addition to these members auxiliary units are available, consisting of coping members, half stretchers for use in constructing angles in the wall face, and double anchor headers for use in walls of exceptional height and double faced walls. By this means this cribbing construction, which has been given the name of "Anchor Cribbing," is readily adapted to a wide variety of structural applications without recourse to any makeshifts or deviations from the essential principles embodied in the design.

The stretchers are 6 ft. long, 12 in. high and 4½ in. thick. They are equipped at each end with an anchor lug projecting 6 in. to the rear for effecting a connection with the headers. The headers are Y-shaped members having a stem and legs 8 in. by 4 in. in section and an enlarged base or anchor detail fitted with two ¾-in. round bars which project four inches from the top and bottom. These bars or dowels fit into holes provided in the corresponding anchor lugs of the adjacent stretchers.

In laying the wall the joints in alternate rows of stretchers are staggered or broken as in ashlar masonry, while the headers are placed with their bases resting on top of the anchor lugs at each joint. Thus the header is connected to the adjacent stretchers of alternate courses while the end of each header rests behind the middle of

The Finished Wall Has an Appearance Closely Resembling That of Ashlar Masonry

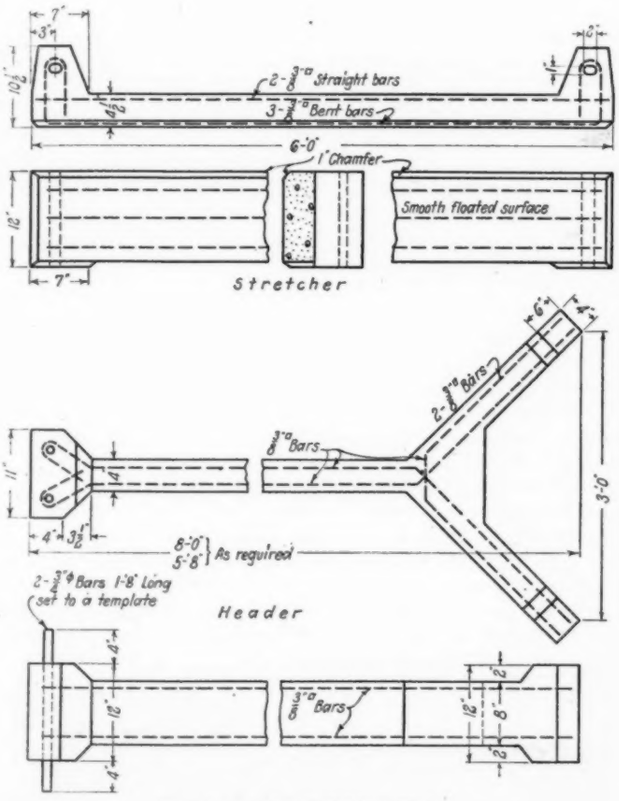
the stretcher in the intermediate course. Furthermore, the spread legs at the rear of the headers provide the anchorage for the structure as a whole and are arranged so that the ends of the legs of one course rest on the ends of the legs of the course next below. Through this arrangement the headers are afforded the necessary support at the rear and the introduction of a rear row of stretchers

How the Headers and Stretchers Are Connected

as commonly provided in other forms of cribbing construction is unnecessary.

From this description it is readily seen that the wall forms a stable, thoroughly interlocked construction. However, particular pains have been taken in working out the details to secure the particular advantages inherent to

cribbing work by insuring an adequate degree of articulation in the structure at the joints. Thus the dowel holes provided in the anchor lugs of the stretchers are slotted—1 in. by 2 in.—allowing plenty of play for the ¾ in. dowels cast in the headers. To insure the permanence of the dowels which fit loosely in these slotted holes they are coated with Hermastic enamel. The stretchers are designed to bear only at the joints. This is effected by casting these members so as to give a clearance of one inch from the course below for all except 7 in. at each end. By providing a chamfer of one inch all around the outside face of the stretchers, this one-inch slot on the lower side is virtually concealed by the shadow of the chamfer, but it will be readily seen that this detail insures that all of the stretchers bear only at the joints, even though the wall may be subjected to considerable irregularity of settlement.



Details of the Cribbing Units

It also has the advantage of affording ample opportunity for the drainage of the filling behind the wall.

All members have been carefully designed to withstand the loads and earth pressure to which they will be subjected in retaining the earth fill. The stretchers are designed as horizontal beams between the supporting headers, but the bending moment is reduced appreciably by the fact that the mid portion of each stretcher for a distance of 11 in. is relieved of the lateral pressure of the earth by the position of the end of the header which is secured to the stretchers of the adjacent courses. Ample reinforcement has been provided in the anchor lugs of the stretchers to take the tension exerted by the headers. This cribbing has been designed with sufficient strength to support a 20-ft. embankment carrying a train load. By the use of auxiliary units the members may be used with entire safety for embankments of considerably greater height.

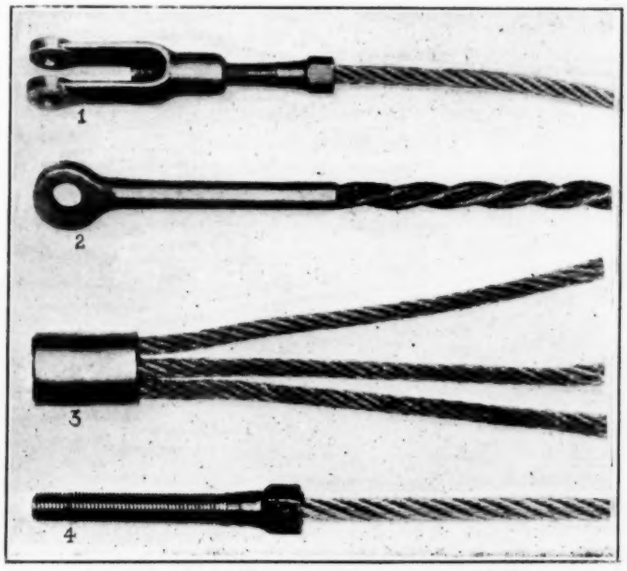
Particular attention was given in the design of the units to keep the weights within limits, such that they can be erected by a small gang of men without the need of special construction equipment. The stretchers weigh 320 lb. each, and the headers 360 lb. and 430 lb., respectively, depending on whether the length is 5 ft. 8 in. or 8 ft. The method of assembly is simple and so obvious that men employed in erecting the wall sense the scheme at once and are not required to possess any particular skill. The work proceeds quickly and can be carried out in close quarters and in the piecemeal fashion where construction conditions do not permit the entire wall to be built at one time. If desirable, the back filling can be carried on simultaneous with the construction of the wall, or the filling may be deferred until after the wall has been completed, although the former is preferable.

The anchor cribbing is readily adapted to use where walls of irregular shape or outline are required. It may be readily removed and rebuilt or modified to suit changing conditions during the course of the work or in the future. Like all pre-cast unit construction it possesses the economies inherent to central plant construction, while its erection is not dependent on weather conditions and can proceed with almost the same advantage in cold weather as during temperature favorable to poured-in-place concrete work.

The anchor cribbing is protected by United States patent and is now being manufactured by the Federal Cement Tile Company of Chicago.

Wire Rope and Fittings to Prevent Unstranding

A WIRE rope, with its fittings, designed for every phase of railroad use has been developed, under the trade name of Tru-lay, by the American Cable Company, New York. The rope is made on the principle of shaping the wires and strands correctly to fit the con-



Samples of Applying the Rope to the Fittings

1—Tru-log rope with a threaded hexagon Tru-loc fitting permitting the application of a shackle as shown.
2—Flat head eye end fitted directly to the rope.
3—Example of a multiple wire rope fitting.
4—Hexagon rope fitting which makes the wire rope adaptable to various uses as rods.

tour in the completed product. The rope is made in Lang and regular lays up to one inch in diameter. An important characteristic is that it resists unstranding. It is claimed that tests show that it has a longer life than ordinary rope under reversed bending stresses. The forming of the wires and strands in the rope results in evenly balancing the load on individual strands and in a uniform load distribution to single wires.

Outer wires on cables when broken by long wear or abrasion, cause considerable trouble, and often necessitate the removal of the rope before it should be discarded. It is said that this trouble has been overcome, as the broken wires in new rope lie flat. The other wires show no tendency to fray out of the rope body, thus lessening the wear on other wires and on the sheaves and drums. The fact that the rope does not unstrand makes splicing a comparatively simple operation.

To make available practically the entire strength of this rope, there has been developed for it a special steel fitting, without zinc, known as Tru-loc, which permits the use of turnbuckles, shackles and other equipment used with rods and chains. A steel sleeve is slipped over the smooth unseized end of the rope, placed in a specially designed press, and made to "flow" down upon the rope until it grips the wires and strands. These sleeves may be of any reasonable length and can be threaded and equipped for wrenches with heads of various types, or furnished with eyes or hooks. The fitting is lighter, less bulky and is said to be more dependable than the old style zinc socket, which is probably due to the greater equalization of the load on the strands of the rope.

Railroad Issues Gasoline from Supply Train Tank Car

By L. B. Wood

General Storekeeper, Southern Pacific Lines, Houston, Tex.

A GASOLINE supply car equipped for distributing that very necessary, dangerous and expensive item of railway supply has just been put into service on the Southern Pacific, Texas and Louisiana lines. The tank is mounted and fastened securely on a steel-underframe 80,000-lb. capacity flat car of modern design. The tank of 6,000 gal. capacity was built of special rolled tank steel in the Houston shops. The lower section, which is in one piece 72 in. by 370 in. in area, provides a solid bottom for the tank. The seams have two rows of rivets spaced 2-in. apart. Splash plates are so arranged that danger of the car getting into a rocking motion is entirely eliminated. There is no outlet in the bottom of the tank, except a 2-in. hole for cleaning as necessity requires. This is closed with a plug securely jammed and locked.

Filling is done through the dome and the suction line enters the top of the tank at one end. Gasoline is handled through a five-gallon self-measuring pump equipped with an indicator and meter registering up to 100,000 gal. A cabin for housing the pump and pipe work, 6 ft. 2 in. by 7 ft. 6 in. is well braced and securely anchored to the car at one end with tie rods. Two 50-ft. lengths of 1-in. steel-clad hose are provided to serve each side of the car, the gasoline being delivered through a quick action two-way valve installed at the outlet of the pump which permits the operator to turn the flow to either side of the train.

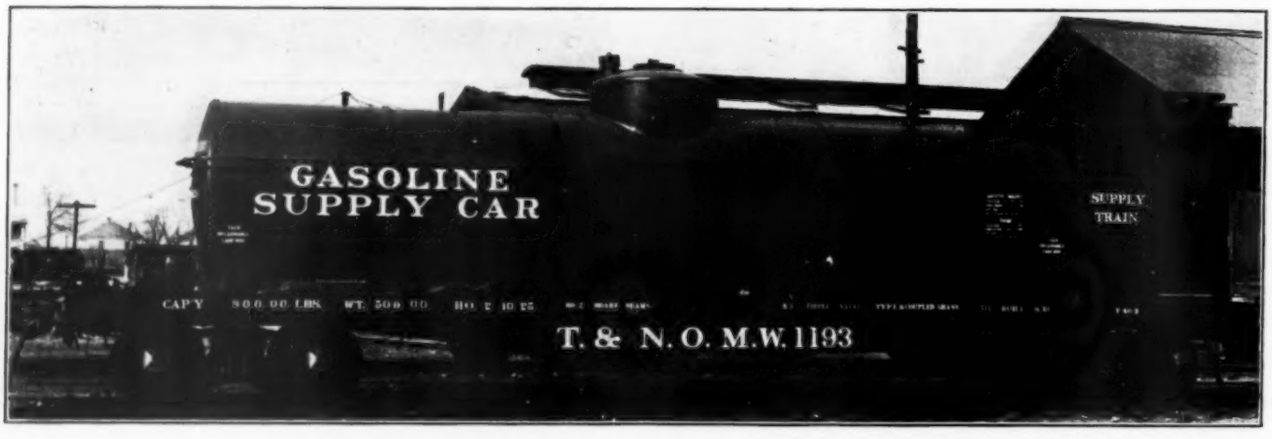
The outlet of the hose is equipped with a cut-off nozzle, to avoid delay in draining and to permit a quick cut-off of the gasoline if occasion should require. Deliveries of from 25 to 60 gal. are made in 6 min.

Approved by Underwriters

The advantage of delivering the exact quantities needed as compared with drum lot issues, the elimination of voluminous drum records and the saving of the difference in purchase price between drum and bulk-lot gasoline have alone made the installation of underground tanks and the delivery car a good investment. In the construction of the car full cognizance was taken of the regulations of the Insurance Underwriters and the Bureau of Explosives.

Deliveries are made to underground tanks buried adjacent to tool houses, the gasoline being served from these tanks through a small hand-operated pump placed inside the house. Approximately 500 of these small storage tanks and pumps were installed preparatory to instituting the practice of delivering gasoline from the tank car.

These lines traverse the great oil fields in Texas and Louisiana where ample supplies, direct from the refinery, are available from the storage tanks of the oil companies. It will be of interest to roads not so fortunately situated to know that this car will serve 2,400 miles of railroad without the installation of a storage or distributing tank. This permits the use of a small tank which, in maintaining a well balanced load, eliminates the restriction on the speed of the train which might be required with a larger capacity tank. It is necessary to operate the supply train at the maximum speed allowed freight trains on a number of districts which range from 150 to 170 miles in length in order to cover them in the allotted time.



The Tank Is Small Enough to Afford a Well Balanced Load

Hearing on Nickel Plate Merger

J. J. Bernet outlines economies—Cross-examined regarding treatment of C. & O.

WASHINGTON, D. C.

THE hearing on the Nickel Plate merger application before Commissioner Meyer and Director Mahaffie of the Bureau of Finance of the Interstate Commerce Commission, which was begun on April 15, was continued on April 16 and 17 and then adjourned until April 23. The adjournment was taken to give counsel for the protesting minority stockholders of the Chesapeake & Ohio an opportunity for further study of the testimony of T. C. Powell, vice-president of the Erie, and J. J. Bernet, president of the New York, Chicago & St. Louis, with a view to further cross-examination, after W. A. Colston, general counsel for the Nickel Plate, had expressed unwillingness to continue the presentation of his case with additional witnesses until the cross-examination of the first two had been completed. Following the testimony of Mr. Powell as to the traffic aspects of the proposed unified control and operation of the New York, Chicago & St. Louis; Chesapeake & Ohio; Hocking Valley; Erie, and Pere Marquette, Mr. Bernet discussed the operating features, with particular reference to the economies to be effected, but his cross-examination dealt particularly with the financial features involved and the terms on which the stock of the new New York, Chicago & St. Louis company is to be exchanged for that of the other companies. Commissioners Eastman, Esch, McChord and McManamy listened to a part of the testimony.

The unified system will comprise approximately 9,160 miles in the United States and 337 miles in Canada, Mr. Bernet said. It will afford a continuous operation between the western gateways and Atlantic ports without the interchange restrictions and attendant delays at the mid-eastern gateways such as the Niagara Frontier, including Buffalo, which at times result in the absolute embargoes that are so annoying and expensive to the shipping public.

"The unified operation and management will result in a more satisfactory relation between the carriers and the public because of limiting the number of lines with which the public must deal in the case of through shipments. For example, in the matter of claim adjustments, one investigation will suffice, whereas at present each line must conduct its investigation to locate responsibility, resulting in endless correspondence, delay and annoyance to shippers. There are many other relations with the public as well as with your honorable body, the state commissions, offices of the various governmental departments, with whom we have to deal which will be expedited and simplified by reason of a unified control.

"I wish to speak of one outstanding traffic weakness of the Chesapeake & Ohio and Hocking Valley railways, that are to become a part of the proposed unified system. The Chesapeake & Ohio and Hocking Valley traffic is so greatly dependent on one commodity, and that commodity is bituminous coal, which is almost entirely dependent on a market beyond the rails of the Chesapeake & Ohio and Hocking Valley, that those lines especialy will profit by reason of a widening of the market and a stronger organization looking toward the distribution of their coal traffic, because of the territory that the proposed unified system will serve and the gateways it will reach for movement beyond its various gateway points. A railroad that is so largely dependent upon one commodity for its traffic finds itself subjected to greater fluctuations because of influences that may affect the production of that one commodity, whereas a railroad that has a diversified traffic is less likely to be affected from such extreme fluctuations. During the year 1924, bituminous coal traffic on the Chesapeake & Ohio was 77.23 per cent and on the Hocking Valley 79.92 per cent of the total traffic handled.

"As to the unified plan's financial structure, there will be no change in amount of funded debt, except to the extent that the conversion of Chesapeake & Ohio or Erie convertible bonds into stock may be effected, but with a complete realization of the plan there will be without conversion of the bonds a shrinkage of outstanding stock in the hands of the public in an amount of $107,752,212.50. Except for abnormal earnings of the Chesapeake & Ohio and Hocking Valley resulting from the coal situation in the Ohio and Pittsburgh fields, the years 1923 and 1924 may generally be accepted as a normal basis for comparing the business of the several lessor companies. The years prior to 1923 and subsequent to federal control should not be used as normal bases of comparison. My opinion is the result of a consideration of all the facts and circumstances of the plan in the light of my experience as a railroad executive and business man, and so considered it is my opinion that the considerations, terms and conditions of the proposal of Messrs. O. P. and M. J. Van Sweringen of August 20, 1924, and of the proposed leases and of the plan in general are equitable, just and fair."

Economies in Operation

Referring to the expected economies Mr. Bernet said:

"At common terminal points, notably Chicago and Buffalo, the constituent lines are in a number of cases occupying leased facilities of other roads under uncertain tenure, and, in other cases, own facilities which are not proportionate to the requirements of the respective companies; some being larger than are required by the owning company and others being inadequate for the necessities of the owning company and incapable of sufficient expansion except at a cost which would be uneconomical. The unification of the roads will permit the use of existing facilities to full capacity and the provision of such additional facilities as may be required to adequately care for the traffic of all the constituent companies at less cost than if provided by them individually." He then described some of the possibilities at Chicago as follows:

"The main yard of the Erie for the Chicago district is located within the corporate limits of Hammond, Ind., and necessitates switching over city streets. The yard is not of sufficient capacity to satisfactorily handle its traffic and, in order to relieve the situation, the Erie proposed an expenditure of $1,500,000 for the construction of the first unit of new yard facilities necessary to take care of its requirements. Under the unified plan this expenditure would not be required and the saving in interest at 6 per cent, and taxes, would amount to $120,000 per annum. In addition, the Erie would be enabled to abandon its Hammond yard and realize a salvage of $474,465, saving in interest and taxes of $43,103 per annum.

"Similarly, the Chesapeake & Ohio freight yard fa-

cilities for the Chicago district are located within the corporate limits of Hammond and are entirely inadequate for its requirements. It contemplated the construction of a new yard and engine terminal near Griffith at an estimated cost of $1,420,000. Under the unification plan this expenditure would be avoided and the saving in interest at 6 per cent, and taxes, would amount to $113,600 per annum. In addition, it would realize from salvage of present facilities, which could be abandoned, $79,200 and the saving in interest at 6 per cent, and taxes, would be $7,128 per annum.

"The Pere Marquette is using, under short term lease, the Rockwell Street yard of the Belt Railway of Chicago at an annual rental of $13,270. Under the unification plan, the use of this yard by the Pere Marquette could be discontinued with resultant saving of $13,270 per annum to the Pere Marquette and with corresponding increase in the facilities afforded to the public served by the Belt without added capital expenditures. (The Belt needs these added facilities.)

"The facilities of the N. Y. C. & St. L. at Stony Island have proven entirely inadequate and it has under construction a new yard, south of 95th street. The capacity of this new yard can be increased to handle the traffic of the Erie, Chesapeake & Ohio and Pere Marquette by an additional expenditure of $971,000, the interest on which at 6 per cent, and estimated taxes, is $83,260 per annum. The net saving under the unification plan for terminal freight yards at Chicago would therefore be $213,841 per annum. In addition there would of course be the further saving which would inevitably result from the operation and maintenance of the large terminal as compared with four smaller terminals.

Freight House, Team Tracks and Interchanges

"At Chicago, the Erie Railroad has a freight house and team track facilities that are of sufficient capacity to handle the business both of the Erie and Pere Marquette and permit the latter road to give up its present leased facilities, which are not as satisfactory to either the railroad or the public. This would result in a saving of $71,338 per annum, which the Pere Marquette now pays for its leased facilities. During the year 1924, the total number of cars handled in and out of Chicago by the four roads, averaged 2,149 per day with a peak daily average, for a month, of 2,353 cars. Under separate terminal operation during the year 1924, the four roads combined worked an average of 53½ engine assignments per day in yard and transfer service. It is estimated that, through unified terminal operation, 42 engine assignments for yard and transfer service will adequately take care of the business, thus effecting a reduction, under unified operation as compared with separate operation, of 11½ engine assignments per day, resulting in a saving of $242,578 per annum in wages, fuel, supplies, maintenance of locomotives and engine house expenses. As an illustration of the reduction that may be effected in engine assignments it may be noted that the four roads combined are now using, under separate operation, 10 transfer engine assignments to handle business to and from the Union Stock Yards district. Under unified operation this business could be handled with three less transfer engine assignments daily and with more frequent deliveries by the use of the Erie's Fifty-first street yard because of its short distance from the Union Stock Yards District. Furthermore, at present under separate operation of these lines, the four roads are making deliveries to their connections at various points in the Chicago territory at different times during the 24 hour period and via different routes. Very frequently at present the business handled by one of the roads will not justify the expense of more than one delivery in a 24-hour period, whereas, under uniled operation, the business of the four lines combined would permit of making heavier and more frequent deliveries, but, because of the heavier loading by reason of consolidating light deliveries, the total number of transfer trains will be greatly reduced and the Chicago terminal congestion will be correspondingly relieved. Under present operation, cars arriving at Chicago too late for certain deliveries may be held over for the following day's delivery, but with the more frequent deliveries which will obtain under unified yard operation the movement of the cars would be speeded.

"As a result of this expedited handling of traffic, the freight car equipment devoted to public use will be increased as a minimum average of 12 hours for each of the 784,097 cars handled in and out of Chicago by the four lines, which can also be regarded as representing a saving to the four lines in question of the per diem charge on one-half day for a total of 784,097 cars handled in and out of Chicago by the four lines, which at the rate of $1.00 per day will represent an amount of $392,048. While this is the minimum credit that the public and the railroads of the country as a whole will receive, much greater benefit will result, particularly in times of car shortage, because of the increased car supply, as at those times this represents a worth to the public and to the railroads of a sum very greatly in excess of the reciprocal per diem charge which railroads make one against the other.

"Another item upon which a material saving could be effected is the delivery from the Chesapeake & Ohio to the Chicago Short Line. This delivery at present is made through an intermediate switching road, and, upon the basis of the check made of this traffic, is costing about $170 per day. Under unified operation, this delivery could be made directly to the Chicago Short Line without using the intermediate line at an annual saving of $62,050, with a substantial reduction in time.

"Under unified operation certain other savings can be realized; such as, trackage payments, yard supervision, yard clerical expenses, car inspection and round house expenses, which, though rather difficult of estimation, are readily apparent. As an illustration of the savings that may be expected from these items, since the Chesapeake and Ohio commenced using the N. Y. C. & St. L. yard facilities at Ninety-fifth street, Chicago, under a temporary arrangement made possible by the partial common control which has been authorized by the commission, a saving has resulted at the rate of $144,100 per annum, which amount is arrived at by comparison of expenses under the combined operation with those under the former method of operating separate yards. The proposed unification would make permanent these results." Mr. Bernet also discussed the changes that would be effected at other cities and by rerouting of traffic, saying that if the unification plan is not carried out and some such rerouting as that suggested is not put into effect, it will be incumbent upon the Erie, in the near future, to carry out revisions of its present line or construction of new lines which it has had under contemplation for some time. Such improvements as were contemplated would cost, upon the basis of current prices, approximately $30,000,000.

Under unified control there will also be a material reduction in the various accounting operations required, Mr. Bernet said, among which he mentioned the following:

Savings in Accounting

(1) But one voucher, draft, or draft authority, where more than one of the constituent companies is involved

would be necessary. Vouchers, drafts, draft authorities and bills between the constituent companies would be eliminated.

(2) It would be necessary to make only one set of contracts for materials and supplies, telegraph service, news privileges, etc.

(3) Interline freight, interline passenger settlement, claim settlements and junction settlements, among the constituent companies, would be entirely eliminated; also, seal records, car records, passing reports and interchange reports would be reduced to but one set of each at the junctions between the constituent companies.

(4) Both loss and damage and overcharge claims would require investigation from only one office and one set of correspondence would suffice.

(5) In the handling of vouchers, bills, claims, etc., the element of controversy, due principally to misunderstandings of contracts, agreements, tariffs and conditions in general, would be minimized if not eliminated.

"Considering our experience with the N. Y. C. & St. L. R. R. consolidation which resulted in accounting savings of $202,076 and applying that saving to this plan on a mile of road basis we have an indicated saving from unified operation of $1,131,558; applying it to gross revenue results in an indicated saving of $1,272,961; applying it on a ton-mile basis results in an indicated saving of $1,418,279. The least or most conservative basis I believe can be depended upon, that is we believe an annual saving of $1,131,555 will result from the proposed unified control and operation.

"In the car record office accounting we estimate a saving of $24,000 per annum as a result of eliminating car hire settlement between the lines in the unified plan and bringing together at one point certain of the car accounts. This item takes no account of the great advantage to the public because of a consolidated tracing and record system which means so much to shippers. Also, the even more important benefit to the public resulting from a wider distribution of equipment and greater control because of the expansion of distributive territory under one control which unified control can influence the return of equipment to the originating territory requiring the various classes of equipment.

"There is another point that should not be overlooked and that is the influence the unified operation of such a large system will exert on the car supply of the small freight originating railroads, switching and short lines. With the several lines operating independently with prospect of a short haul in many cases to the first junction point, there may be a marked reluctance to furnish cars in times of shortage. On the other hand with a unified control with prospects of a long haul to destination with a continued control of equipment from origin to destination without its loss, originating railroads can expect more liberal treatment in the matter of car distribution, and this wider distribution and control of equipment must result in great benefit not only to these weaker lines without sufficient equipment to protect their loadings, but also to the public which they serve.

"In the matter of interchange of equipment at 36 points of connection of the lines embraced in this plan we estimate that in the item of car inspection alone a saving of $39,086 per annum can be made. But more important than that to the public is the expedited movement of traffic and consequent improvement in car supply because of eliminating delays by continuous service through the junction points, and avoiding delays incident to joint interchange inspection and record.

"There are many other sources of economy that can come out of the unified operation, which, while perfectly obvious, do not lend themselves to an estimate or allocation of savings. For example, we believe there can be brought about a greater saving through the standardization of equipment, both motive power and cars, reducing correspondingly the amount of material required to be kept on hand for repairs, and that will likewise apply as a result of a standardization of track specifications and maintenance practices. The purchase and distribution of supplies and material on hand will be facilitated, and the amount required to protect a unified operation will be materially reduced, as compared to that needed to protect the requirements of the several units if operated separately.

Summary

"The annual saving, with respect to the items heretofore discussed as economies of unified operation and for which amounts have been specifically estimated, is as follows:

"Use of the new N. Y. C. & St. L. Yard at 95th Street, Chicago, by the Erie, in lieu of new yard at Griffith	$163,102.90
"Use of the new N. Y. C. & St. L. Yard at 95th Street, Chicago, by the C. & O. in lieu of new terminal at Griffith	120,728.00
"Discontinuance by the Pere Marquette of use of the Rockwell Street Yard of the Belt Railway of Chicago	13,270.60
"Use by the Pere Marquette of the Erie freight house and team tracks at Chicago	71,338.00
"Reduction in locomotive assignments used in deliveries and interchange at Chicago	242,578.00
"Elimination of intermediate switching line on shipments from C. & O. to Chicago Short Line Ry	62,050.00
"Temporary use by the C. & O. of N. Y. C. & St. L. yard facilities at Chicago, permanency of which will be assured under proposed plan	144,100.00
"Increased utilization of freight car equipment at Chicago represents a saving not less than	392,048.00
"Discontinuance by the N. Y. C. & St. L. of the use of the New York Central freight house facilities at Buffalo	35,028.00
"Substitution of interchange by the Pere Marquette with the Pennsylvania instead of through the New York Central at Buffalo	60,000.00
"Discontinuance of use of the Ann Arbor facilities at Toledo by the Pere Marquette	17,183.00
"Use by the C. & O. of the Erie line between North Judson and Griffith	321,410.00
"Diversion of C. & O. traffic, Russell, Ky., to Chicago, Ill., from Cincinnati gateway to the Columbus-Marion, Ohio, route	1,320,056.00
"Use by the N. Y. C. & St. L. of the Erie line between Ohio City and Decatur	9,779.00
"Use of Nickel Plate-Erie routing instead of the Erie direct between Lima and Hornell, including interchanges at Lima and Ohio City	489,290.40
"Through freight train service between Columbus and Bellevue, Ohio, elimination of interchange at Fostoria	42,500.00
"Car record accounting	24,000.00
"Car Inspection at interchange points	39,086.00
"Accounting	1,131,558.00
"Deduction on account of additional annual expense for extending N. Y. C. & St. L. Yard at 95th Street, Chicago, to provide for traffic of the unified system	83,260.00
"Net savings in unified operation	$4,615,845.90
"Savings as result of new line construction	31,121.00
"Total savings	$4,646,966.90

"In addition, appreciable savings could undoubtedly be effected in the other items heretofore mentioned but for which no specific amounts have been determined and in other items not enumerated. It follows, therefore, that the proposed unification, in addition to being a logical railroad development, presents opportunity for economical and efficient operation and for serving the interest of the public to better advantage than is possible under separate operation."

Cross-Examination

Under cross-examination by E. C. Bailly, representing minority stockholders of the Hocking Valley, who said that the earnings of that road had apparently been reduced by large charges for depreciation, retirement and maintenance of equipment in 1923 and 1924, Mr. Bernet said that these were necessary to make up for the deferment of such expenditures in the past and that they would be necessary for some years to come. He was also questioned regarding the purpose of the Hocking Land Company, which he said had acquired 680 acres of land on the Maumee river at $2,000 an acre which is being held for the purpose of erecting later coal and ore handling equipment and possibly a grain elevator.

The questioning was then taken up by Henry W. An-

derson, representing C. & O., minority stockholders, who asked about the acquisition of stock of the Chesapeake & Ohio which later made it possible for the Van Sweringen interests to elect seven out of eleven directors of the Chesapeake & Ohio. Mr. Bernet said the Van Sweringen brothers had purchased the Huntington stock in the C. & O., 73,000 shares, at $100, but to avoid any criticisms had turned the stock over to the New York, Chicago & St. Louis at 80, taking a personal loss of $1,460,000. Later the Nickel Plate had acquired other stock in the market until it had $15,500,000 par value at a cost of $12,072,028. The Van Sweringens had also acquired a large amount of C. & O., stock in their own right.

When Mr. Bernet said the Nickel Plate had paid for its stock from treasury assets Mr. Anderson brought out that much of the money in the treasury was derived from the sale of an issue of $26,000,000 of bonds in 1924 to reimburse the treasury for expenditures for additions and betterments and other purposes and he asked if the company had not gone back for 20 years to find items of expenditure that could be capitalized. Mr. Bernet said that the company had undertaken to set up on its books the true state of facts and that it had been done under the rules and supervision and with the approval of the Interstate Commerce Commission.

Mr. Anderson then said that as the present owners of the stock of the old Nickel Plate company are not, under the plan, to exchange their stock for stock of the new company, they will continue to own the old company which will have in its treasury stock of the new company issued in exchange for that of the Chesapeake & Ohio and Pere Marquette, and he also brought out that the Van Sweringens control the Nickel Plate through the Nickel Plate Securities Corporation. Mr. Bernet assented to this, but when Mr. Anderson took the position that the new Nickel Plate company is to assume the liability for the bonds of the old company, as well as of the other companies, without getting the stock which was purchased with the proceeds of the bonds, Mr. Bernet said the new company is to get, under the lease, the property represented by the bonds and that the stock was purchased from free assets in the treasury, not money which specifically represented the sale of the bonds.

Mr. Anderson then asked why the C. & O. is required to turn over its 80 per cent control of the Hocking Valley without getting anything for it while the Nickel Plate is not required to turn over its treasury stocks. Mr. Bernet said he assumed it was because the C. & O. holdings of Hocking Valley are pledged under its mortgage. Mr. Anderson then said that the Pere Marquette stock, which was bought at about $49, is to be exchanged for 85 per cent of new Nickel Plate stock, which on the basis of present quotations would be worth $80, thus showing a profit, whereas the present quotation of the New Nickel Plate stock is less than the price the Van Sweringens paid for C. & O. stock.

Mr. Anderson then asked many questions as to what factors were taken into consideration in fixing the exchange basis for C. & O. stock, repeating over and over again in his questions that Mr. Bernet and the other directors of the Chesapeake & Ohio and Hocking Valley who voted to accept the plan had been placed on the boards by the Van Sweringens, were also directors of the Nickel Plate and incorporators of the new company, and had not negotiated with the minority stockholders. Mr. Bernet said he had recommended the plan to the Chesapeake & Ohio stockholders because he thought it was a fair one. He said he had used the general business judgment of a railroad executive and business man and had considered the value of the property, the traffic of the various roads and how each could supplement each other. He came to the conclusion that unification would make more value for the stock it is proposed to exchange for that of the old companies and he had considered the exchange basis on the basis of what each company might contribute to the new company.

When Mr. Colston objected to the frequent repetition in question form of some of Mr. Anderson's statements he said he was trying to show that the presidents and directors of the various roads had abdicated their functions and become agents of the Van Sweringens to turn the properties of their stockholders over to the control of the Van Sweringens. When Mr. Bernet said he thought some figures of the I. C. C. valuation of the C. & O. had been considered, Commissioner Meyer said that they must have been the underlying valuation reports because the tentative valuation has not yet been served but will be in the not distant future.

Preliminary Report on A. C. L. Train-Control Installation

WASHINGTON, D. C.

THE Interstate Commerce Commission has made public a letter written by E. H. De Groot, Jr., director of its Bureau of Signals and Train Control Devices, to Lyman Delano, executive vice-president of the Atlantic Coast Line, offering the following criticisms and comments as a result of the preliminary inspection of the installation of the intermittent inert inductive type of auto-manual train-stop device of the General Railway Signal Company on the 24-mile double track section of its line between Rocky Mount and Ruggles, N. C.:

1. The track inductor as located and fastened makes displacement or removal unlikely, and it is therefore believed that the employment of detectors is not required on this installation.

2. The closing of the inductor winding results in a clear operation of the device; hence a cross in the wires leading to this winding would result in a false clear condition of the inductor. It is, therefore, vital that the installation and maintenance of the track inductor circuit shall be such as to protect the integrity of this circuit.

3. With a signal in the clear position, the polarized track relay is picked up and the track inductor winding closed, so that, should a signal fail in the clear position with a train in the block, the stop inductor at the failing signal would constitute the only automatic protection afforded a following train, and the degree of protection would vary with the location of the train occupying the block.

It is suggested that this be given careful consideration with a view of possibly securing increased protection should these conditions arise.

4. The track inductors are located at the signals, and the stop operation for an occupied block is provided at the next signal in the rear of that at the entrance to such block. This requires an engineman to forestall at a caution signal in order to avoid an automatic application of the brakes, and should this block be too long and an engineman not be alert while running therein after forestalling, the train could approach the stop signal at such speed as to overrun this signal. This observation is not directed at the blocks of this installation but is offered on account of its basal importance.

5. Track inductors should be provided at braking distance from the signals governing entrance to train control territory.

6. It is suggested that the type of fouling protection employed at sidings and crossover switches be considered with a view of possibly securing increased protection.

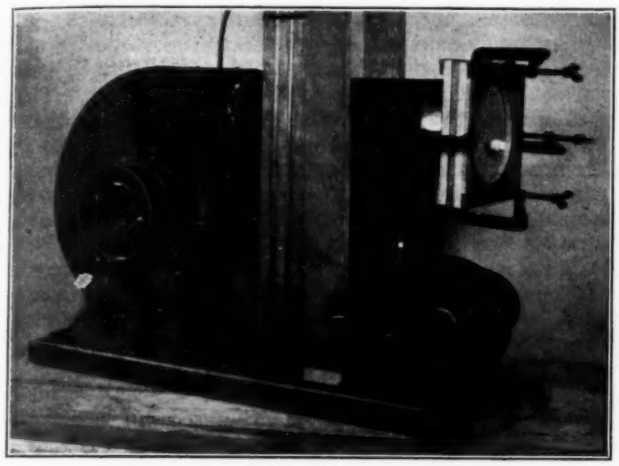
7. It is suggested that the smaller actuator piston which operates the rotary valve to service position be checked to make sure that its area provides an ample margin of safety for overcoming any extreme rotary valve frictional resistance which might develop.

8. Since certain crosses in the locomotive circuits could result in false clear operations, it is obvious that the integrity of these circuits must be protected.

9. It is obvious that adequate means should be employed to reduce the number of undesired stop operations to a minimum.

Balsam-Wool Insulation Tests

A NEW insulator called Balsam-Wool has been developed by the Wood Conversion Company, Cloquet, Minn., designed primarily for use in refrigerator cars. It is made from the fibers of coniferous Northern woods, chemically treated to withstand refrigerator car service. These fibers are first separated from one another by chemical and mechanical means similar to those used in pulp making. The individual fibers, which are fine, hairlike hollow tubes, are then saturated with chemicals that tend to render them both fireproof and decay proof. In this condition, they are next bound together with cement but with the axes of the fibers extending in all three cubical dimensions and not parallel to each other as in wood. The result is a resilient blanket of fibers which weighs only 5 lb. per cu. ft., or less than one-half the weight of cork. It contains countless still air cells, over 94 per cent of the volume being still air.



Apparatus to Determine Resistance to Air Currents

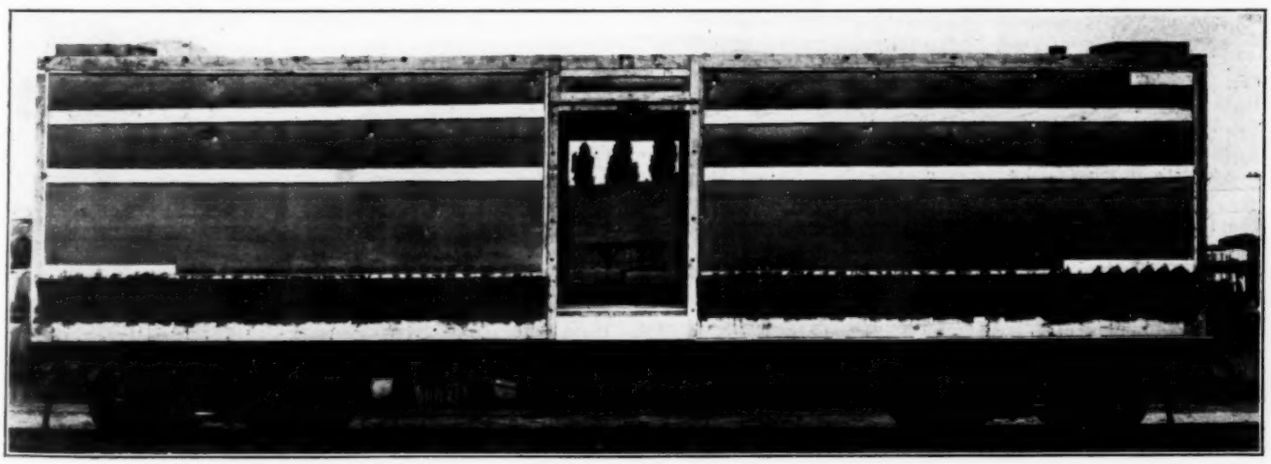
To increase the mechanical strength of the fibrous blanket, it is covered on both sides with a layer of creped waterproof Kraft paper which is cemented to the blanket of fibers by a high melting point asphalt. This covering layer is impervious to the passage of both water and air.

Tested for thermal conductivity, the average heat flow in 24 hours through Balsam-Wool is 6.1 B.t.u. per sq. ft. per in. thickness per deg. F., some samples testing as low as 5.7. The flexible texture of this product makes it elastic, and this elastic principle is further carried out through the use of the creped Kraft paper liner which it is said can be stretched 25 per cent or more without tearing. This is a greater stretch than occurs when the top of a refrigerator car weaves 8 in. out of line.

Some interesting tests of Balsam-Wool were conducted by Howard F. Weiss, research engineer of the C. F. Burgess Laboratories, Madison, Wis., as follows: To test the resistance of the material to mechanical wear and tear, a machine was constructed on which was mounted a section of a refrigerator car side frame 8 ft. high and 4 ft. wide. To this section the insulators under test were then nailed. The machine was started and it thrust the top of the frame 8 in. out of plumb with the bottom. The whole frame at the same time being lifted and dropped 3/16 of an inch rapidly enough to give it a vibrating motion. The object sought was to duplicate as closely as possible what happens to an insulator fastened to a refrigerator car which is in bad condition and rolling over a rough track. After being subjected to many repeated thrusts and vibrations, the Balsam-Wool did not tear or shake down.

To test for porosity, an air pressure equivalent to an air velocity 40 miles an hour was maintained against one side of the insulator as illustrated, a manometer being used to indicate the pressure. The distance the cotton ball was blown from the perpendicular was used as a measure of the permeability of the insulator to air and in the case of Balsam-Wool there was no perceptible movement of the cotton ball. When inoculated with molds and fungus and placed in a warm, damp, atmosphere, no growth occurred.

The asphalt-coated liners are resistant to the passage of moisture so that the interior blanket of fibers is protected when exposed for an appreciable time to a high humidity. The tests showed that Balsam-Wool will absorb about 30 per cent moisture, or over twice as much as that of cork when subjected for a long time to a humidity of 90 per cent or more. However, at 30 per cent moisture, Balsam-Wool is said to contain less moisture per square foot than cork at 15 or 10 per cent moisture because of the former's extremely low density. Therefore, its thermal resistance, even when subjected to high



Refrigerator Car in Process of Construction Using Balsam Wool Insulation

and to prolonged humidity, is not seriously impaired.

The product comes in large sheets that are light in weight and can be easily cut and nailed. It is said to be possible to save 2,000 lb. or more of dead weight in the construction of a refrigerator car by the use of this insulation. About 20 cars have been equipped to date.

Motors Replace Work Trains*

By M. D. Carothers
Assistant Engineer Maintenance, Baltimore & Ohio, Chicago Terminal, Chicago.

THE Baltimore & Ohio Chicago Terminal is using 35-hp., gasoline-driven, truck type motors, friction driven to both axles, for the transportation of materials and men over its line in place of work trains with success. These cars are designed for speeds ranging from 2 to 30 miles per hour in either direction. The wheel base of these cars is 9½ ft. The steel frame is carried on 2½-in. non-insulated steel axles with 2¼-in. tapered-tread, pressed-steel wheels with double-riveted

A Motor Car Hauling Ties

hubs. There are no loose wheels. The hand lever brakes are similar to those on hand cars but of larger size. The light on these cars is kerosene using a car inspector's lantern for a head light and standard railroad markers for rear lights.

There are two of these cars each of which is provided with two trailers or push cars of a special heavy type with wooden frames but with the same type of wheels and axles as on the motor cars. They have a capacity of five tons each. The coupling between the trailers and the motor car is effected by means of a specially constructed drawbar composed of a solid rod inside a coil spring which is housed by a three-inch pipe. This arrangement permits the ready starting of heavy loads.

The carpenter forces use these cars to move all classes of material from yard to place of use, for in this terminal district only a small amount of material can be left at the site of the work on account of theft. Once each month they mount a ladder on a push car and repair all bridge warning signals.

The track department uses these cars about 60 per cent of the time in carrying material to the various sections from centrally located material yards or storage points. In handling cross ties, the two truck cars are spread apart and two 30-ft. 60-lb. rails are laid from one car to the other. This provides a 30-ft. flat car that will carry from 100 to 110 main-line ties or from 150 to 160 side-track ties. With a crew of six men these motor car trains handle as high as 1,400 ties in one day of 10 hours at an average cost of 2 cents per tie, as against a cost of 4½ cents per tie if handled by work train. In handling rail these cars will haul 25, 80-lb. 33-ft. rails at 14 miles per hour. All small track material used in the maintenance of way department that is not handled by the supply train is secured from the storehouse and delivered to the section needing the extra material.

The signal and bridge departments use these cars to handle small amounts of screenings and stone for concrete work around interlocking plants, bridges and buildings, where less than car load lots are required. These cars are also used in moving gangs from one location to another. Twice each month, these cars are used to pay the sectionmen, interlocking men, towermen and crossing watchmen without loss of time to the men. This also eliminates the expense of running a pay car with a saving of about $200 per month.

The crew used to operate one of these cars consists of an operator and one helper. The operator when occupying the main track is under train orders. The motor car must clear all trains in sidings or yards, as the weight is too much to set it off at any road crossing.

During 1924 these cars traveled 17,169 miles, making 5.6 miles per gallon of gasoline and 24 miles per pint of oil. The maintenance on each of these cars and trucks averages about $150 per year per outfit.

* Abstracted from a paper presented before the Maintenance of Way Club of Chicago on March 17.

The Largest Steam Shovel with Caterpillar Mountings

THE most recent development in steam shovels applicable to heavy railroad grading is the new Bucyrus 120-B, which has been brought out by the Bucyrus Company, South Milwaukee, Wis., to provide a large capacity machine that meets the present

The Bucyrus 120-B Steam Shovel

tendency towards crawler treads in all types of power shovels. It also embodies in the four-yard shovel the full revolving feature which affords the quick action and greater mobility that have proved so advantageous in the smaller models. There are several reasons for the popularity of the caterpillar mounting for steam shovels of all capacities in railroad grading. It eliminates the shovel track entirely, it shortens the time of moving the shovel ahead since there are no side braces or jack arms to slack up and reset, it enables the shovel to back out of the way

quickly whenever blasts are to be set off and it simplifies the problem of moving the shovel to the job.

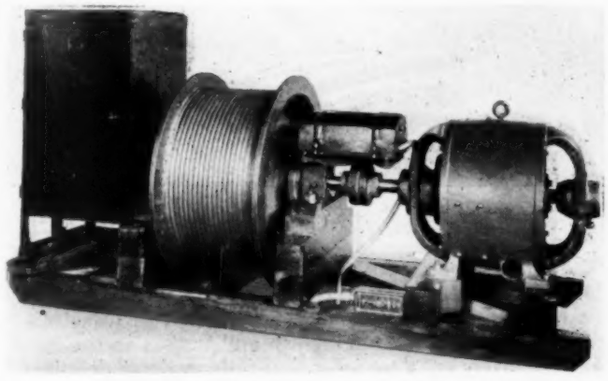
The new 120-B is said to be the largest shovel ever mounted on caterpillar treads, this model having been developed for the purpose of making available in a heavy shovel, suitable for hard materials and work where maximum output is required the same advantages as to mobility and quick action which have hitherto been afforded only in shovels of relatively small capacity and size.

The design fulfills all the requisites for strength and digging power for heavy service heretofore embodied only in the heavier railroad type shovels. For example, the boom is about the same length as that on a 115-ton railroad track shovel while the shafts are designed with from 30 to 50 per cent greater strength than has hitherto been used in conservative design. The base and revolving frame are constructed of solid steel castings without the use of structural steel work, rivets or bolts. As seen in the photograph the load on the crawler tread is distributed over five bearing wheels.

Certain refinements have been embodied in the design which are not ordinarily considered standard on steam shovels. For example, the boiler is equipped with superheater equipment and a firebrick arch, the grate area of the boiler is 10 per cent more and the heating surface is 15 per cent greater than in the most powerful railroad type shovel and it is said by the manufacturer that these refinements should be effective in reducing the water and coal consumption by 20 to 30 per cent.

A New Electric Hoist for Skip Buckets

GREATER lee-way in the choice of hoisting equipment for railway coaling stations has been afforded railroads in the development of a new type of automatic hoist for use in elevating skip buckets. This machine is an electrically-operated device of the reversible self-breaking type, which consists essentially of an internally-geared drum to which the driving motor is direct-connected through a flexible coupling. The arrangement of parts produces an unusually compact unit.



The Hoist Set Up for Shipment

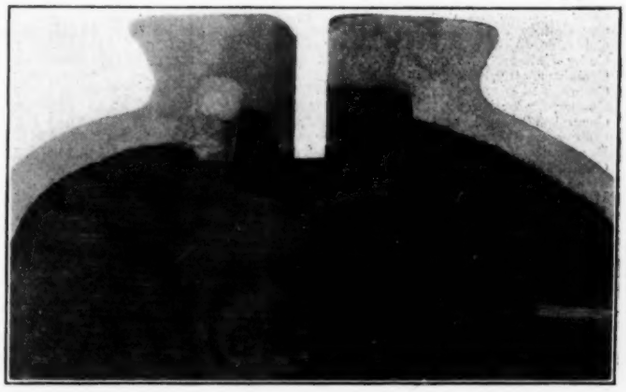
In addition to the spur gearing, the hoisting drum includes all the reducing mechanism for the machine, which mechanism permits speed reductions from 40 to 1 and 96 to 1. The operation of the machine is as follows: The pinion on the driving shaft of the motor negotiates with three gears located at equal intervals on its circumference. These gears mesh with an internal gear and through this internal gear operate another set of three separate gears which are mounted on independent eccentric shafts. The eccentric action of these three gears causes a large ring gear, which meshes internally with the main driving drum, to revolve the drum at the desired speed for hoisting a load. Ordinarily the bucket operated by this drum moves not to exceed 110 ft. per minute.

For limiting the travel of the load a Cutler-Hammer limit switch, which operates on the cam principle, is mounted on the hoist and this switch functions through a Cutler-Hammer control for reversing the operation of the hoist drum. This self-braking type of hoist avoids the expense of a solenoid brake, since the resistance to back travel through the eccentric, described above, is such as to afford a locking power sufficiently effective to prevent the load from backing up the drum when the current is cut off.

The main drum is made oil tight and all the gearing inside this drum operates in oil to reduce to a minimum the effects of friction and dirt. For reasons which are clear from the description, the machine is called a reversible enclosed self-braking automatic hoist. It is a product of the Roberts & Schaefer Company, Chicago.

Air Hose Gasket Designed to Prevent Leakage

BRAKE pipe leakage has been the source of much trouble and many investigations. It has been attributed to many causes such as the improper hardness or softness of gaskets, various methods of machining air hose couplings, etc. The usual form of gasket, when resting on its seat, has a heavy cross section of about 3/16 in. The only pressure exerted down on the seat is the resiliency of the rubber resulting from the opposed gasket. Thus, owing to insufficient pressure, this heavy section of rubber cannot fit the seat closely enough nor can it fill the pits and imperfections of the seat.



Air Hose Gasket Designed with a Lip to Prevent Leakage

An air hose gasket has been designed which is said to eliminate these objectional features. The section of the gasket which fits in the coupling has added to the outside circumference parallel with the axis of the gasket a fin of thin section, the top of which extends back slightly towards the center so that it will fold back towards the body of the gasket when applied. In this position the fin conforms to any irregularity in the seat. When the air pressure reaches the lip of the gasket, it is pushed outward and downward against the seat, making a very close approximation to a perfectly sealed joint, the action being similar to that of water on the gasket of a hydraulic ram.

The gasket has been placed on the market by the Sheafe Engineering Company, Inc., Chicago.

Educational Institutions Large Holders of Railway Securities

NEARLY 28 per cent of all the income-producing endowments of the principal colleges, universities and technical schools of the United States are invested in steam railroad stocks and bonds. This is shown by a compilation from a questionnaire sent to 65 of the foremost endowed colleges and other educational institutions by the Bureau of Railway Economics. The total book value of the productive investments of these 65 institutions amounts to $531,696,687. Of that amount $148,270,933, or 27.9 per cent is invested in steam railroads—$129,150,352 in bonds and $19,120,581 in stocks.

INVESTMENT OF SIXTY-FIVE AMERICAN UNIVERSITIES IN THE SECURITIES OF STEAM RAILWAY COMPANIES—1924

University or College	Total amount of productive investment (book value)	Total amount of productive investment in steam railway bonds (book value)	Total amount of productive investment in steam railway stocks (book value)	Total amount of productive investment in steam ry. securities (book value)	Percentage of investment in steam ry. securities to total productive investment
Amherst College	$6,456,850	$2,766,430	$198,000	$2,964,430	45.9
Allegheny College	1,079,361	128,416	.....	128,416	11.9
Auburn Theological Seminary	940,510	117,152	45,746	162,898	17.3*
Barnard College	4,519,318	3,700,134	.....	3,700,134	81.9
Beloit College	1,884,180	48,132	4,000	52,132	2.8
Bowdoin College	3,569,282	1,296,497	.....	1,296,497	36.3
Brown University	8,905,788	1,882,611	776,032	2,658,643	29.9
Bryn Mawr College	6,042,289	3,584,200	83,250	3,667,450	60.7
Calif. Inst. of Techlgy	5,871,099	116,100	5,667	121,767	2.1
Catholic Univ. of Am.	*2,800,000	2,500,000	.....	2,500,000	89.3
Case School of Applied Science	2,987,041	279,000	.....	279,000	9.3
Colorado College	1,737,707	78,542	6,577	85,119	4.9
Conn. Col. for Women	1,121,920	1,019,000	.....	1,019,000	90.8
Coe College	*1,300,000	75,000	500	75,500	5.8
Columbia College	1,214,633	170,767	20,000	190,767	15.7
Colby College	*1,253,077	192,000	80,200	272,200	21.7
Creighton University	1,190,000	16,000	.....	16,000	1.3
Columbia University	*52,695,357	5,651,000	3,315,550	8,966,550	17.0
Cooper Union	3,900,936	1,598,309	255,459	1,853,768	47.5
Cornell University	19,899,351	3,338,175	860,857	4,199,032	21.1
College of Wooster	2,000,000	10,000	40,000	50,000	2.5
Dartmouth College	6,741,214	1,425,677	119,470	1,545,147	22.9
Gen'l Theol. Sem. of the Prot. Epis. Ch.	2,669,192	71,112	147,353	218,465	8.2
Harvard University	†43,000,000	11,699,386	1,982,010	13,681,396	31.8
Johns Hopkins Univ.	18,881,149	9,649,064	507,840	10,156,904	53.8
Lelaid Stanford, Jr., University	27,939,000	13,907,000	.....	13,907,000	49.8
Lindenwood College	1,328,807	25,236	107,952	133,188	10.0
Lafayette College	2,179,064	345,530	76,309	421,839	19.4
Lehigh University	4,012,031	1,682,202	.....	1,682,202	41.9
Mass. Inst. of Techy.	28,700,000	4,775,000	984,000	5,759,000	20.1
Middlebury College	2,915,702	634,802	29,100	663,902	22.8
Northwestern Univ.	12,516,533	194,011	9,900	203,911	1.6
New York University	2,976,215	1,084,030	184,695	1,268,725	42.6
Park College	*1,264,336	87,000	.....	87,000	6.9
Princeton University	14,500,644	7,319,040	118,000	7,437,040	51.3
Radcliffe College	3,117,121	427,584	286,563	714,147	22.9
Rutgers College	1,767,592	456,645	39,000	495,645	28.0
Rochester Theol. Sem.	2,022,858	796,552	.....	796,552	39.4
Reed College	1,500,000	112,085	.....	112,085	7.5
Rice Institute	9,494,213	381,996	.....	381,996	4.0
Simmons College	2,716,352	874,009	4,845	878,854	32.4
Smith College	4,107,902	1,194,518	240,345	1,434,863	34.9
Stevens Inst. of Tech.	2,595,556	1,020,745	45,802	1,066,547	41.1
Syracuse University	2,838,000	162,043	54,527	216,570	7.6
Trinity College	2,442,397	769,538	46,875	816,413	33.4
Tulane University of Louisiana	6,600,876	1,506,949	313,481	1,820,430	27.6
Tufts College	3,166,529	107,931	43,398	151,329	4.8
Univ. of California	7,725,444	167,367	.....	167,367	2.2
Univ. of Chicago	38,593,698	8,708,932	2,804,073	11,513,005	29.8
Univ. of Cincinnati	*5,457,271	6,000	156,450	162,450	3.0
Univ. of Michigan	1,832,512	43,522	8,650	52,172	2.8
Univ. of Minnesota	*2,740,083	428,872	31,415	460,287	16.8
Univ. of Missouri	*2,000,000	42,000	.....	42,000	2.1
Univ. of Richmond	1,981,838	208,000	2,600	210,600	10.6
Univ. of Rochester	*36,000,000	7,600,000	315,000	7,915,000	22.0
Univ. of Pennsylvania	14,187,315	5,094,965	279,048	5,374,013	37.9
Vanderbilt Univ.	5,163,037	2,116,438	.....	2,116,438	41.0
Vassar College	6,447,822	1,735,747	49,475	1,785,222	27.7
Wabash College	1,255,000	37,609	.....	37,609	3.0
Washington Univ.	10,863,425	1,594,247	792,434	2,386,681	22.0
Wesleyan Univ.	4,750,662	174,705	1,900	176,605	3.7
Western Reserve Univ.	4,598,720	63,830	687,185	751,015	16.3
Williams College	5,074,666	1,540,889	189,646	1,730,535	34.1
Worcester Poly. Inst.	2,548,102	458,346	84,716	543,062	21.3
Yale University	37,115,110	9,851,725	2,684,686	12,536,411	33.8
Grand Total	531,696,687	129,150,352	19,120,581	148,270,933	27.9

*No book value reported, par value substituted.
†Estimated.

Leland Stanford University reports that $13,907,000, or 49.8 per cent of its investments consist of railway securities. Harvard University, with $13,681,396, or 31.8 per cent, ranks second and Yale, with $12,536,411, or 33.8 per cent, is third. Chicago University, with $11,513,005, or 29.8 per cent, is fourth and Johns Hopkins University, with $10,156,904, or 53.8 per cent, is fifth. Connecticut College for Women has 90.8 per cent in railroads; Catholic University of America 89.3 per cent, Barnard College 81.9 per cent; Bryn Mawr 60.7 per cent.

Of the $52,695,357 in productive investments that have been made by Columbia University, $8,966,550 or 17.0 per cent is in railroad securities while Massachusetts Institute of Technology has $5,759,000 or 20.1 per cent; the University of Pennsylvania $5,374,013 or 37.9 per cent, and Princeton University $7,437,040 or 51.3 per cent.

New Transmission System Improves Crawler Crane

THE use of two vertical shafts, one inside the other on the axis of revolution, is the means employed by the Industrial Works, Bay City, Mich., to provide separate control for the two propelling belts on a new crawling tractor crane being introduced by that company.

Using the New Crane in Material Handling Service

The crane is of 10-ton capacity and is known as the Type DC. The two shafts are connected by separate trains of gears to the respective belts. Each belt is directly controlled by two friction clutches and brakes in the revolving upperworks, thus affording independent, definite and easy control over each belt while propelling. The Type DC is said to be the only crawler crane which steers and propels by friction clutches. It is also said to be the only crane which has a friction clutch and band brake for each tractor belt. These features make maneuvering in close quarters comparatively simple.

All speeds of the motor-operated crane have been increased 25 per cent, which provides ample speed for the handling of all materials. The crawling tractor belts have a length of 10 ft., center to center of end sprockets, an ample length to give stability when lifting over either end on any kind of ground. This crane can be equipped to operate with a steam engine, electric motor, gasoline mo-

tor or fuel oil engine of the Diesel type. It may be used for operating with a clamshell or a dragline bucket, an electro-magnet, a hook and block or grapple. It is readily convertible into a shovel or a pile driver.

Norfolk & Western Proposes to Lease Virginian

A PROPOSED lease of the Virginian by the Norfolk & Western has been approved by the boards of directors of the two companies according to announcement by A. C. Needles, president of the latter, which announcement is contained in a notice of a special meeting of the stockholders of the Norfolk & Western to be held on May 23 to approve the merger. The terms of the proposed lease are outlined by Mr. Needles as providing for the payment by the Norfolk & Western of operating expenses, taxes, interest on funded debt, a reasonable amount for maintenance of the corporate organization and dividends at the rate of 6 per cent on the Virginian's outstanding preferred stock, and common stock. These dividends will call for an annual payment of $3,553,600. This sum was more than earned by the Virginian in 1923, Mr. Needles points out, and was closely approached in 1922 and in 1924, the net earnings for these three years averaging 5.85 per cent on the outstanding stock. Large capital expenditures, recently made but not yet completed and in full operation, are as yet unproductive of income, these including a modern pier at Norfolk, the extensive electrification program and the construction of the Virginian & Western.

In further amplification, Mr. Needles said:

"The Virginian's tonnage for 1923 was, in round numbers, 8,250,000 tons, of which some 7,300,000 tons were coal and coke. The two roads do not serve the same mines or compete as coal carriers. Nor have they for other business any substantial relationship of competing carriers.

"The communities served by the Virginian and Norfolk & Western will, under this closer relationship, have ready access by one-line haul to points not now reached by available through routes and rates. The patrons of the two systems and the communities they serve, both on line and more distantly, will, it is believed, have a more efficient service. A striking illustration would be the alternative use of the Norfolk & Western or Virginian lines to tide in times of congestion on either line.

"Duplication of facilities by both roads will be avoided by this alternative use and unified operation. The electrification of the Virginian from the coal fields in West Virginia to Roanoke, Va., will shortly be completed. The use from time to time of the Virginian's better grade line to tide will save heavy outlay in revision of the line and grade of the Norfolk & Western to tide; and the combined use of the two roads will avoid duplication by the Virginian of trackage and other facilities which the two railroads in joint operation can furnish.

"From the viewpoint of freight train cars, both roads are well equipped, and this is true of locomotive power. Both are equipped with the same electrical system, the Norfolk & Western in the coal field and the Virginian from the coal field to Roanoke. United, the car service, the locomotive power and the electric power service should be a better service than either road can give in separate operation. The Virginian's coal pier at Sewell's Point will be an important alternative delivery point for bunker and cargo coal from Norfolk & Western sources as the country and export coal take up the overproduction of bituminous coal caused by the stimulus of the great war.

"The managements of the two roads believe that united they will afford a better service than is possible by a severed development and operation."

President Samuel Rea of the Pennsylvania, in a statement issued on Tuesday, said further:

"The lease of the Virginian to the Norfolk & Western thoroughly accords with the consolidation plans outlined to the Interstate Commerce Commission. When the lease is effective it will enable the Virginian Railway, in connection with the Norfolk & Western, to be fully developed for westbound as well as eastbound traffic, so that the territory served by both lines and the trade and commerce depending upon them will benefit from the broader service, economically rendered, without unnecessary additional tracking and duplication of facilities.

"Parts of both roads are now being electrified and under the lease can be worked together in close co-operation with marked benefit to the owners of both properties and to the public they serve."

The Virginian serves mines in the New River and Pocahontas coal districts of West Virginia. Its lines in the Pocahontas field lie close to those served by a branch of the Norfolk & Western and in the New River field, close to the lines of the Chesapeake & Ohio, many mines in the latter area being served by both the Virginian and the Chesapeake & Ohio. The Virginian main line extends from Deepwater, W. Va., where connection is made with the Chesapeake & Ohio via Princeton, W. Va., and Roanoke, Va., to Norfolk, a distance of 441 miles. This line closely parallels the main line of the Norfolk & Western for a considerable distance west of Roanoke and then runs to the south of the Norfolk & Western, paralleling it but at some distance east of that city.

At Norfolk, the Norfolk & Western's terminals are at Lamberts Point and those of the Virginian at Sewells Point. The Virginian and the Norfolk & Western lines connect at several points. The Virginian is especially well equipped to handle business from the coal fields to tidewater and in the past few years has made extensive additions at Sewells Point to handle a rapidly increasing business. It is very much handicapped, however, with reference to westbound traffic and has been unable to realize as handsomely as might otherwise have been possible on the expanded demand for non-union coal in the Central West. As a matter of fact, it has been the custom for the mines in the New River field served by both the Chesapeake & Ohio and the Virginian to ship the westbound coal over the former and the eastbound coal more largely over the latter.

The Virginian has outstanding, at the present time, $47,228,400 funded debt and $59,226,500 stock, divided $31,271,500 common and $27,955,000 6 per cent cumulative preferred. In 1923 and 1924 the preferred received 6 per cent dividends and an initial dividend of 4 per cent was paid on the common on December 31, 1923. Practically all of the stock is owned by the interests connected with the Rogers estate. The Virginian was built by H. H. Rogers, who had it constructed to such high standards that from Clark's Gap, W. Va., to Norfolk the ruling grade against tidewater traffic is but 0.2 per cent. West of Clark's Gap, however, the coal traffic has to meet an opposing grade of 2.07 per cent. Formerly this was the neck in the bottle of the road's operations, but some years ago the line up the grade was double tracked and, at the present time, the road is about ready to put into service electric operation on this division as far east as Roanoke.

Of special interest in connection with the proposed acquisition of the Virginian by the Norfolk & Western is the effect that this is expected to have on the proposed four-system plan recently formulated by the executives of the Eastern district. In this plan, as originally announced last October, the Norfolk & Western is assigned to the Pennsylvania but the Virginian was assigned instead to the greater Nickel Plate System. The Pennsylvania strongly objected to such treatment for the Virginian, and it is properly to be supposed that the present step is intended by the Pennsylvania as a means of giving its opposition practical effect. The Pennsylvania, however, has a large interest in Norfolk & Western stock, and representatives on its board of directors.

The Corporation Commission of Virginia has announced that it will oppose the lease when the matter comes before the Interstate Commerce Commission.

General News Department

B. E. Holloway, vice-president and general manager of the Mexican Railway, has been appointed by President Calles of Mexico as special Mexican delegate to the International Railway Congress to be held in London in June.

The Protective Section of the American Railway Association will hold its fifth annual meeting not at Atlantic City but at the Auditorium Hotel, Chicago, on Wednesday, Thursday and Friday, July 8, 9 and 10. Secretary J. C. Caviston, 30 Vesey street, New York City, will send out the program at a date yet to be announced.

Colonel Frank G. Jonah, chief engineer of the St. Louis-San Francisco, who served during the world war as chief engineer of light railways in France, has received the Polish decoration of the Order of the Swords of Haller in recognition of his services to the Allies during the war. The award included an official citation and a military medal bearing a white eagle, the national emblem of Poland, and crossed swords.

Hosea Stiles Burr, assistant to the manager of stores of the Erie, was the guest of honor at a dinner given by his friends at Saegertown Inn, Saegertown, Pa., on the evening of April 18, to celebrate Mr. Burr's continuous service of 50 years with the Erie. The list of speakers included R. S. Parsons, vice-president, Ohio Region; William Schlafge, formerly general mechanical superintendent; August L. Sorensen, manager of stores; J. C. Tucker, general agent; and John E. Reynolds, Mayor of Meadville, Pa.

Passenger Car Named for Commuter

Robert N. Shaw, of White Plains, N. Y., who has traveled on a commutation ticket over the New York, Westchester & Boston, between White Plains and New York for 13 years, or ever since the road began operation, was invited last week (April 18) to see this "record" celebrated, at White Plains, by the unveiling of his name, painted in gold letters, on the side of one of the new cars recently put in service between White Plains and New York. The unveiling was made by the railroad company the occasion of formal ceremonies, at which President L. S. Miller and others made speeches; and a luncheon was served.

Pensions on the Texas & Pacific

The Texas & Pacific has established a pension system for its employees and also has placed an age limit on applicants for employment. Those who have reached the age of 70 and who have been with the company continuously for 25 years will be retired on a pension on the basis of one per cent for each year of service, computed on the average regular pay received for the 10 years next preceding retirement. No monthly allowance will be less than $25 nor more than $100. A special group, composed of trainmen and track employees of section foreman rank or higher, may be retired on pension at 65 years. The system will be supported by the company without contributions from employees.

Except for certain classes of work no person inexperienced in railroad service will be employed who is over 35 years old or any experienced person over 45 years of age.

Association of Railway Executives Meets in Chicago

The Hoch-Smith resolution, which provides for investigation by the Interstate Commerce Commission of the railway rate structure, and the plan for operating the railroads in time of war were discussed at the meeting of the Association of Railway Executives in Chicago on April 18. R. H. Aishton, chairman of the executive committee of the association, presided. It was decided that because of the different situations that exist in various parts of the country, action on the resolution should be left to the individual roads to handle either separately, or by groups or regions, or in any other way that they might deem proper.

The meeting also approved with some minor changes the tentative plan for operating the railroads in time of war, which was formulated by the War Department after conference with the committee of railroad executives and outlined in the *Railway Age* of March 7 and March 14. The committee was authorized to confer further with the War Department with a view to making such minor changes.

Staten Island Tunnel

The plan of the mayor of New York for a tunnel under the bay from Staten Island to Long Island to be used for both passenger and freight traffic, has been thwarted by an act of the legislature, approved by Governor Smith on April 22, stipulating that the tunnel, if constructed, shall be for rapid transit purposes exclusively; that is, for passengers. The city has already expended large sums on plans and for preliminary operations, but the governor, in a statement accompanying his approval of the law, says that the change now required will save $38,000,000 of the people's money. The city, says the governor, may provide for passenger transportation but provision for freight transportation is in the hands of the Port Authority; and the tunnel scheme of the city conflicts with the plans of the Port Authority. The governor criticizes the scheme of the mayor as tending to result in the expenditure of many millions for a freight tunnel when there is no assurance that any railroad company will be willing to make use of the tunnel.

Less Governmental Interference Needed

An urgent plea for the government and the people to let the railways alone in the solution of their transportation problems was voiced by President W. B. Storey of the Atchison, Topeka & Santa Fe, in an address on "The Present Day Situation of the Railroads" before the railroad meeting of the Mid-Day Luncheon Club at Springfield, Ill., on April 15. "The biggest problem that confronts the railroads today is interference," said Mr. Storey. "I voice the request of all the railroads when I say to you, 'Let us alone.' We then will work out our transportation problems which are also your problems, as well as they can be worked out for every one concerned."

C. W. Galloway, vice-president of the Baltimore & Ohio, also spoke on railway problems, particularly the development of new competition from highway carriers and the grade crossing accident situation. C. J. Brister, assistant vice-president of the New York Central, discussed the growth of railways in Illinois and the outlook for transportation in the future.

Milwaukee Reduces Accidents, Claims and Fuel Consumption

The Chicago, Milwaukee & St. Paul has effected a reduction in the number of employees, trespassers and others killed in shops, on tracks, in stations and on crossings from 423 in 1913 to 170 in 1924. Not a passenger has been killed in a train accident in the last five years, although in that period 70,000,000 passengers were carried an average distance of 60 miles each. During 1924 the Safety and Fire Prevention Bureau conducted 456 safety meetings which were attended by 3,594 officers and 6,858 employees. At these meetings 11,395 suggestions were received, of which 11,285 received favorable action. The papers prepared by employees and read at these meetings numbered 460.

The St. Paul also reduced its freight loss and damage payments from $3,513,515 in 1920, which was 2.94 per cent of the total freight revenue, to $1,180,890 in 1924, or 0.96 per cent of the freight revenue. The reduction in payments in the four years was $2,332,626.

An excellent record was also made in the conservation of fuel. In freight service the pounds of coal consumed per 1,000 gross ton miles were reduced from 194.4 lb. in 1920 to 167.8 lb. in 1924. The consumption of coal per passenger car mile in passenger service was reduced from 20.1 lb. in 1920 to 17.5 lb. in 1924. This saving in the use of coal amounted to 509,000 tons for the year, applied to the volume of business handled in 1924, and the saving in money, at the average price of coal in 1924, was $1,473,454.

Open New Santa Fe Office Building at Topeka

The new general office building of the Atchison, Topeka & Santa Fe at Topeka, Kan., was dedicated on Saturday, April 18, the building being open to inspection by guests during the afternoon and evening. Music and refreshments and the exhibition of paintings of Santa Fe scenes were features of the reception.

The new building is the largest structure in the United States devoted strictly to general offices of a single railway company. It is U-shaped and ten stories in height. There are two wings, each

75 ft. by 150 ft. and a connecting building, 50 ft. by 150 ft. The entire structure is of reinforced concrete, the first two floors being faced with stone and the balance with terra cotta. One of the features of the building is an assembly hall 175 ft. by 85 ft., on the tenth floor, which has a stage 25-ft. by 48-ft. with dressing rooms in connection. This is to be used for gatherings of Santa Fe employees and their guests and as a recreation center for the employees.

No Compromise in Quebec's Refusal to Allow T. & N. O. to Extend Line

There is no compromise in sight between the governments of Ontario and Quebec over the proposed construction by the former of an extension of its railway, the Temiskaming & Northern Ontario, into the Rouyn gold field in northwestern Quebec. Premier L. A. Taschereau of Quebec, absolutely refuses the Ontario government permission to build the line. Several representatives of Ontario have gone to Quebec City at different times in the past two months to iron out the difficulty but without success. "Since the last interview which took place between Hon. Charles McCrea, Minister of Mines for Ontario, and myself, a few weeks ago," said Premier Taschereau last week, "there have been no further official interviews.

"I must add that there has been no intention whatever on our part to change our stand in this connection," asserted the Quebec Premier.

"I think the statement given out some time ago has been plain enough to show that it is not our intention to rescind our decision on this subject."

In addition to the reason given by Quebec that the proposed line would draw trade from Quebec into Ontario a factor in the situation was that, without obtaining permission to build, material for the proposed road was carried into Quebec and stored there before the Quebec government had been warned of the intentions of the promoters. Quebec even goes to the extreme now of declaring that the courts cannot intervene and deprive it of its right to resist encroachment on Crown lands. Such lands form most of the territory over which the proposed line would have to run.

General Meeting of Division One, A. R. A.

W. J. Fripp (N. Y. C.) chairman of the operating division of the American Railway Association, announces that an important meeting of the Division will be held at the Blackstone Hotel, Chicago, on Thursday, May 14 (the day before the general meeting of the association) at 9:30 a. m. Central time. The Division has had no general meeting for several years, the work of the division being continued, however, so far as practicable, by meetings of the general committee.

The program for the coming meeting is as follows:

(a) Report of special joint committee consisting of three operating division representatives and three medical and surgical section representatives, in which recommendations are made covering physical examination of applicants for employment, and periodical physical examination of employees, particularly those concerned with the operation of trains.
(b) Suggested changes in operating statistics.
(c) Specifications for torpedoes approved by the Association, May 15, 1924. Suggestions as to certain modifications therein.
(d) Progress report of the committee on operating rules submitting for discussion and suggestions, tentative changes in the standard code of block signal rules; standard code of interlocking rules, and a proposed consolidation of the single and double track train rules.
(e) Simplifying the waybilling of l. c. l. freight between lines.
(f) Form for use by Railroad special service or police departments for reporting interline robberies, recommended as standard practice by the Protective section.
(g) Surgeon's report blanks for use in connection with personal injury cases, recommended as standard practice by the medical and surgical section.
(h) Recommendations of medical and surgical section as to first-aid equipment, treatment and instruction.
(i) Election of a chairman, vice-chairman, members of general committee and the committee on nominations for the ensuing year.

Freight Robberies Less Numerous

The protective Section of the American Railway Association, W. W. Morrison, acting chairman, reports that for the year 1924 the losses of the American railroads on account of robberies were nearly 29 per cent less than the total of those losses in 1923, while at the same time the ratio of robbery charges to the total payments for loss and damage of freight, decreased from 6.3 per cent to 4.8 per cent.

In 1923 total freight claim payments amounted to $49,540,377; in 1924 to $48,262,543 or a decrease of 2.6 per cent. In 1923 the total losses on account of robberies amounted to $3,117,484; in 1924 to $2,222,608 or a decrease of 28.7 per cent.

This information, contained in a circular issued by Secretary J. C. Caviston, 30 Vesey street, New York City, is supplemented by a statement showing, by Class I roads, total payments for loss and damage of freight during the last three months of 1924; also the total amount of unlocated losses (except on coal, grain, livestock and oil) and the total amount of payments on account of robberies. For all of the roads reporting for the three months, the total of all payments was $10,735,168; total unlocated $929,787; total robberies $486,690.

Fire Hazard from Cigars and Pipes

"For several years past the records of the Railway Fire Protection Association," says a recent circular of that organization, "have shown that hundreds of thousands of dollars of railroad property and property in the care or custody of railroads as carriers have been destroyed by fire, due to carelessness and indifference on the part of employees in connection with smoking in shops, freight stations, warehouses, etc. There must be a personal responsibility felt in accepting the regulations restricting smoking. Property and material destroyed cannot be replaced. They are lost." The circular continues:

"*Smoking should be prohibited* in shops, coaling stations, piers, warehouses, storehouses, freight houses and offices therein, in record rooms and around freight platforms, and in all places where

(*Continued on page* 1050)

Freight Operating Statistics of Large Steam Roads—Selected Items for February, 1925,

Region, road and year		Average miles of road operated	Train-miles	Locomotive-miles: Principal and helper	Locomotive-miles: Light	Car-miles: Loaded (thousands)	Car-miles: Per cent loaded	Ton-miles (thousands): Gross, Excluding locomotive and tender	Ton-miles (thousands): Net, Revenue and non-revenue	Average number of locomotives on line daily: Serviceable	Unserviceable	Per cent unserviceable	Stored
New England Region:													
Boston & Albany	1925	394	255,817	271,708	26,488	4,729	69.7	243,969	96,821	129	16	10.7	...
	1924	394	276,277	294,690	29,364	5,138	71.0	257,755	103,061	123	22	15.0	...
Boston & Maine	1925	2,348	498,786	571,829	54,365	12,081	72.4	604,111	250,096	342	116	25.4	30
	1924	2,366	517,714	572,404	49,817	11,555	74.1	570,527	241,677	350	124	26.2	43
N. Y., New H. & Hart	1925	1,931	453,009	474,845	33,881	11,857	71.1	597,744	250,739	296	72	19.5	14
	1924	1,974	473,153	497,142	27,570	11,702	73.1	574,312	246,146	291	79	21.3	7
Great Lakes Region:													
Delaware & Hudson	1925	888	369,293	503,949	45,835	9,773	65.5	632,210	322,468	239	35	12.8	47
	1924	887	375,899	524,424	49,183	10,018	68.4	625,309	323,067	254	39	13.4	46
Del., Lack. & Western	1925	993	541,027	657,736	95,947	16,525	70.3	933,410	429,332	295	63	17.6	7
	1924	993	527,496	653,559	100,407	16,256	70.2	886,981	406,738	271	83	23.4	5
Erie (inc. Chic. & Erie)	1925	2,325	875,709	978,489	97,475	31,165	67.4	1,857,567	863,149	646	100	13.3	135
	1924	2,325	1,025,183	1,160,015	89,114	34,643	68.7	2,067,919	982,496	654	121	15.6	130
Lehigh Valley	1925	1,357	547,839	605,760	66,451	16,127	65.9	958,890	441,606	456	63	12.1	95
	1924	1,356	610,587	675,877	71,939	16,880	67.8	981,442	464,733	466	95	17.0	78
Michigan Central	1925	1,826	536,993	548,653	18,916	17,251	65.2	947,759	345,130	301	66	18.0	73
	1924	1,827	628,329	652,471	21,207	20,029	66.9	1,052,300	414,352	287	48	14.4	20
New York Central	1925	6,475	2,065,043	2,364,968	178,672	70,431	61.7	4,312,045	1,876,516	1,180	396	25.1	185
	1924	6,447	2,322,680	2,628,098	182,683	76,880	63.2	4,682,426	2,094,328	1,239	421	25.4	212
New York, Chic. & St. L.	1925	1,669	643,211	651,974	7,093	18,976	65.7	1,055,746	435,350	257	61	19.1	47
	1924	1,669	739,284	748,847	3,058	20,701	69.8	1,110,071	475,138	255	61	19.4	31
Pere Marquette	1925	2,198	356,135	363,632	6,537	9,034	65.1	525,761	248,415	188	26	12.3	23
	1924	2,227	421,849	446,493	11,327	10,507	69.2	573,706	273,073	189	21	10.0	9
Pitts. & Lake Erie	1925	231	134,839	135,196	910	4,475	60.6	352,777	201,232	64	18	22.2	1
	1924	231	153,982	157,634	1,577	5,170	60.1	385,702	218,381	63	18	22.1	6
Wabash	1925	2,497	634,503	666,478	9,611	19,190	68.9	1,037,641	424,698	280	63	18.3	18
	1924	2,459	725,705	747,374	12,289	20,166	70.9	1,095,008	469,145	312	42	12.0	...
Central Eastern Region:													
Baltimore & Ohio	1925	5,196	1,720,004	2,012,614	166,423	48,556	64.3	3,039,067	1,459,507	928	324	25.9	57
	1924	5,207	2,006,892	2,313,453	182,268	54,162	65.7	3,342,217	1,655,969	1,059	214	16.8	87
Central of New Jersey	1925	692	271,184	300,850	38,991	6,492	58.2	439,098	210,518	233	38	14.1	22
	1924	692	273,069	305,024	42,140	6,524	62.7	415,069	202,890	237	42	15.0	29
Chicago & Eastern Ill.	1925	945	228,335	233,198	3,732	5,984	62.7	369,071	176,777	115	41	26.5	27
	1924	945	279,406	285,756	4,811	6,988	61.8	444,973	222,265	121	48	28.4	12
Clev., Cin., Chic. & St. L.	1925	2,376	686,746	735,733	14,786	20,024	60.9	1,309,811	614,001	360	76	17.4	21
	1924	2,376	776,720	824,940	17,667	22,942	63.0	1,486,200	736,202	335	93	21.7	2
Elgin, Joliet & Eastern[1]	1925	460	132,169	144,844	7,722	3,899	63.5	298,409	150,298	81	12	12.8	...
	1924	460	136,922	154,241	9,371	4,093	65.8	315,164	169,306	94	12	11.7	9
Long Island	1925	393	41,548	45,484	11,025	545	59.0	33,667	13,291	40	14	25.6	...
	1924	393	43,568	49,736	8,819	581	60.1	34,782	13,645	40	12	22.9	1
Pennsylvania System	1925	10,930	4,331,048	4,701,270	362,819	117,025	63.7	7,760,926	3,704,339	2,570	963	25.1	33
	1924	10,937	4,613,265	5,031,710	374,944	122,687	66.1	8,026,451	3,969,081	2,770	741	21.1	95
Reading	1925	1,132	649,156	712,849	69,441	15,682	60.3	1,101,344	566,690	383	80	17.3	40
	1924	1,142	658,358	730,054	73,253	16,079	63.3	1,079,157	561,285	392	81	17.2	81
Pocahontas Region:													
Chesapeake & Ohio	1925	2,598	1,072,948	1,128,044	34,273	30,720	56.5	2,425,932	1,304,732	422	108	18.0	15
	1924	2,553	1,010,571	1,100,419	29,040	29,016	57.3	2,218,414	1,210,019	423	106	20.0	2
Norfolk & Western	1925	2,230	790,879	953,638	38,139	23,547	60.7	1,883,176	988,434	570	99	14.9	111
	1924	2,231	902,460	1,110,572	43,671	25,518	60.1	2,045,222	1,108,269	562	117	17.2	66
Southern Region:													
Atlantic Coast Line	1925	4,869	861,277	880,218	14,080	21,828	62.2	1,160,946	445,440	394	45	10.2	16
	1924	4,867	848,532	853,367	12,770	20,721	64.7	1,072,568	420,553	364	67	15.5	24
Central of Georgia	1925	1,907	301,012	304,054	5,521	6,712	72.9	351,269	153,718	152	11	6.7	26
	1924	1,907	298,739	300,625	4,909	6,529	75.5	335,442	155,814	140	18	11.6	5
I. C. (inc. Y. & M. V.)	1925	6,225	1,584,482	1,604,766	36,610	45,360	65.3	2,760,324	1,207,362	793	112	12.3	51
	1924	6,198	1,883,689	1,899,013	41,504	50,123	64.8	3,123,373	1,425,233	803	120	13.0	8
Louisville & Nashville	1925	5,027	1,673,523	1,814,407	65,611	31,725	61.5	2,104,139	1,017,890	603	97	13.9	4
	1924	5,026	1,764,532	1,890,063	70,603	32,438	63.7	2,115,186	1,044,166	618	101	14.0	1
Seaboard Air Line	1925	3,755	520,936	531,085	12,574	12,730	68.9	688,283	275,576	238	34	12.5	...
	1924	3,548	557,732	567,764	7,658	12,775	69.7	676,069	269,977	219	42	15.9	...
Southern Ry.	1925	6,840	1,405,129	1,457,151	31,787	32,921	67.3	1,788,638	731,464	843	130	13.4	18
	1924	6,820	1,460,563	1,499,530	33,692	33,546	70.9	1,785,450	760,102	857	111	11.5	4
Northwestern Region:													
Chic. & North Western	1925	8,463	1,326,105	1,365,478	26,867	29,400	64.3	1,646,400	664,943	766	241	23.9	89
	1924	8,463	1,667,921	1,725,867	17,294	35,172	63.4	1,940,953	895,673	873	215	19.7	24
Chic., Milw. & St. P.	1925	11,201	1,448,332	1,529,168	73,058	39,584	65.1	2,199,906	968,264	956	163	14.5	91
	1924	10,983	1,762,625	1,823,129	71,791	42,722	65.8	2,459,771	1,131,670	964	158	14.1	107
Chic., St. P., Minn. & Om.	1925	1,726	305,600	321,131	13,500	5,814	67.0	325,064	140,312	155	37	19.2	1
	1924	1,726	351,864	378,314	18,128	6,618	67.1	377,118	165,062	161	41	20.4	2
Great Northern	1925	8,231	682,516	706,310	37,483	20,670	67.8	1,157,054	534,974	624	162	20.6	139
	1924	8,252	749,596	782,978	45,046	22,775	70.0	1,285,994	593,588	624	168	21.2	137
Minn., St. P. & S. Ste. M.	1925	4,375	475,641	487,142	5,564	11,094	71.2	573,372	262,803	300	42	12.4	27
	1924	4,374	524,528	537,636	8,054	11,864	72.7	611,836	288,269	291	52	15.3	13
Northern Pacific	1925	6,440	685,430	716,351	40,599	21,270	71.8	1,161,431	540,567	536	171	24.2	113
	1925	6,415	783,844	819,485	44,227	23,768	75.0	1,303,763	628,169	555	161	22.5	82
Oreg.-Wash. R. R. & Nav.	1925	2,181	160,796	169,917	14,511	4,468	74.2	243,679	113,231	140	22	13.4	16
	1924	2,180	200,114	210,780	19,452	5,089	72.9	287,595	133,505	149	23	13.3	16
Central Western Region:													
Atch., Top. & S. Fe (incl. P. & S. F.)	1925	10,045	1,318,125	1,399,923	69,084	36,400	67.2	2,209,868	983,210	826	182	18.1	235
	1924	9,846	1,383,130	1,452,737	72,601	39,926	68.0	2,206,470	856,942	790	167	17.4	212
Chicago & Alton	1925	1,022	263,556	286,669	3,910	6,233	64.6	377,247	166,431	126	28	18.0	24
	1924	1,010	321,308	327,125	4,711	7,081	60.7	441,862	187,293	124	28	18.3	9
Chic., Burl & Quincy	1925	9,326	1,383,379	1,430,192	52,153	38,501	64.7	2,236,062	1,020,407	823	191	18.8	34
	1924	9,335	1,646,516	1,712,290	71,383	43,228	62.8	2,610,356	1,197,327	817	200	19.7	15
Chic., Rock I. & Pacific	1925	7,578	1,225,594	1,252,314	8,444	29,952	70.5	1,543,542	649,620	559	162	22.5	49
	1924	7,635	1,346,599	1,374,085	16,816	30,589	68.3	1,629,751	678,492	528	235	30.8	34
Denver & R. G. Wn.	1925	2,567	189,984	233,527	44,562	4,827	69.3	279,851	134,887	245	54	17.9	66
	1924	2,599	206,454	252,015	43,271	4,725	70.9	276,102	136,447	236	86	26.7	76
Oregon Short Line	1925	2,414	254,624	268,171	18,645	6,531	67.2	392,283	179,105	185	41	18.0	53
	1924	2,365	333,322	349,970	23,593	7,911	64.3	487,634	212,636	209	25	10.6	49
Southern Pac. (Pac. Sys.)	1925	8,517	1,187,164	1,307,967	215,145	35,811	68.2	2,086,045	889,220	691	245	26.1	92
	1924	8,458	1,317,243	1,458,960	226,486	38,767	69.0	2,196,145	919,345	700	221	24.0	62
Union Pacific	1925	3,688	700,427	716,220	31,764	25,117	75.0	1,317,988	570,886	489	64	11.6	175
	1924	3,715	887,705	904,059	48,571	29,756	71.3	1,617,178	688,303	463	74	13.7	108
Southwestern Region:													
Gulf, Colo. & S. Fe	1925	1,897	254,253	266,142	5,654	7,566	64.2	451,628	196,470	114	21	15.5	7
	1924	1,897	247,346	255,101	7,323	6,822	63.7	406,293	176,259	122	23	15.9	18
Missouri-Kansas-Texas	1925	1,787	216,622	216,622	3,767	7,236	60.7	425,913	169,366	113	34	23.0	37
	1924	1,801	223,459	223,857	2,904	7,055	63.0	395,881	158,049	144	54	27.2	66
Mo.-Kans.-Tex. of Tex.	1925	1,389	187,661	197,862	7,479	5,054	61.0	297,942	117,651	114	32	21.7	39
	1924	1,389	168,734	173,396	2,045	3,931	63.4	224,376	88,971	105	25	19.4	30
Missouri Pacific	1925	7,277	1,276,697	1,310,443	37,491	34,171	66.1	1,973,054	871,278	517	99	16.0	...
	1924	7,305	1,184,547	1,193,835	36,310	30,862	68.4	1,752,663	803,696	438	176	28.7	2
St. Louis-San Francisco	1925	4,683	808,263	826,042	14,979	17,120	64.0	984,931	411,844	413	71	14.6	26
	1924	4,683	787,297	797,655	13,717	15,396	65.8	869,687	370,425	422	74	15.0	33
Southern Pacific Lines (in Tex. and La.)[2]	1925	3,756	557,711	559,211	5,191	13,448	67.1	774,409	336,775	219	63	22.4	21
	1924	3,710	602,390	604,649	4,045	13,598	67.6	783,492	341,812	231	59	20.2	16
Texas & Pacific	1925	1,953	268,958	268,958	2,362	6,944	65.3	388,561	149,915	150	41	21.5	17
	1924	1,953	287,888	287,888	2,460	6,902	66.1	376,420	147,279	160	41	20.5	23

[1] No passenger train service.

[2] Includes Franklin & Abbeville, Galveston, Harrisburg & San Antonio, Houston & Shreveport, Houston & Texas Central, Houston East & West Texas, Iberia & Vermilion, Lake Charles & Northern, Louisiana Western, Morgan's La. & Tex. R. R. & S. S. Co., and Texas & New Orleans.

Compared with February, 1924, for Roads with Annual Operating Revenues Above $25,000,000

Region, road and year	Average number of freight cars on line daily: Home	Foreign	Total	Per cent unserviceable	Stored	Gross tons per train, excluding locomotive and tender	Net tons per train	Net tons per loaded car	Net ton-miles per car-day	Car miles per car-day	Net ton-miles per mile of road per day	Pounds of coal per 1,000 gross ton-miles including locomotive and tender	Locomotive miles per locomotive day
New England Region:													
Boston & Albany....1925	2,569	6,470	9,039	2.9	97	954	378	20.5	383	28.8	8,778	208	73.6
1924	1,886	5,975	7,861	3.4	....	933	373	20.1	452	31.8	9,021	217	77.5
Boston & Maine....1925	13,347	16,199	29,546	8.7	....	1,211	501	20.7	302	20.2	3,804	164	48.9
1924	13,851	17,491	31,342	11.7	....	1,102	467	20.9	266	17.1	3,522	183	45.3
N. Y., New H. & Hart....1925	19,045	20,853	39,898	21.8	586	1,319	553	21.1	224	14.9	4,638	152	49.4
1924	18,906	17,731	36,637	20.1	....	1,214	520	21.0	232	15.1	4,299	170	48.9
Great Lakes Region:													
Delaware & Hudson....1925	8,521	7,180	15,701	6.2	....	1,712	873	33.0	733	33.9	12,970	195	71.8
1924	9,967	7,451	17,418	5.3	....	1,664	859	32.2	639	29.0	12,553	223	67.5
Del., Lack. & Western....1925	16,568	10,340	26,908	3.7	....	1,735	794	26.0	570	31.2	15,448	184	75.1
1924	13,896	10,222	24,118	4.4	....	1,681	771	25.0	582	33.1	14,131	207	73.5
Erie (inc. Chic. & Erie)..1925	35,693	20,918	56,611	7.1	9,058	2,121	986	27.7	544	29.1	12,256	142	51.5
1924	30,196	21,858	52,054	7.0	3,445	2,017	958	28.4	650	33.4	14,573	152	55.6
Lehigh Valley 1925	22,460	12,088	34,548	7.4	150	1,750	806	27.4	456	25.3	11,626	169	46.3
1924	21,888	11,252	33,140	8.0	225	1,608	761	27.5	483	25.9	11,819	183	46.0
Michigan Central 1925	13,768	15,896	29,664	5.8	1,022	1,765	643	20.0	416	31.9	6,751	130	55.3
1924	10,600	20,509	31,109	5.6	115	1,675	659	20.7	459	33.2	7,822	147	69.2
New York Central....1925	69,455	74,479	143,534	3.7	19,210	2,086	909	26.6	465	28.3	10,351	141	57.6
1924	55,597	84,846	140,443	4.7	1,803	2,016	902	27.2	514	29.8	11,202	143	58.4
New York, Chic. & St. L..1925	10,024	10,945	20,969	7.2	2,060	1,641	677	22.9	741	49.1	9,318	132	74.2
1924	8,402	13,924	22,326	5.2	454	1,502	643	23.0	733	45.7	9,819	151	82.0
Pere Marquette 1925	8,893	8,873	17,766	7.2	887	1,476	698	27.5	499	27.9	4,036	128	61.8
1924	8,030	15,914	23,944	3.3	....	1,360	647	26.0	393	21.9	4,228	161	75.1
Pitts. & Lake Erie....1925	13,643	8,076	21,719	4.5	2,164	2,616	1,492	45.0	331	12.1	31,050	73	59.4
1924	10,365	10,848	21,213	4.3	247	2,505	1,418	42.2	355	14.0	32,569	83	67.5
Wabash 1925	12,941	11,488	24,429	2.5	825	1,635	669	22.1	620	40 6	6,074	151	70.4
1924	10,788	14,991	25,779	2.6	....	1,509	646	23.3	627	38.0	6,578	172	73.8
Central Eastern Region:													
Baltimore & Ohio....1925	69,473	34,824	104,297	9.9	2,809	1,767	849	30.1	500	25.8	10,031	183	62.2
1924	62,846	39,953	102,799	7.6	3,435	1,665	825	30.6	555	27.7	10,975	200	67.6
Central of New Jersey....1925	17,370	11,271	28,641	3.3	2,959	1,619	776	32.4	262	13.9	10,862	186	44.8
1924	16,761	11,378	28,139	5.5	1,763	1,520	743	31.1	249	12.7	10,110	206	42.9
Chicago & Eastern Ill....1925	15,100	4,198	19,298	19.3	4,009	1,616	774	29.5	326	17.6	6,680	161	54.3
1924	12,320	5,271	17,591	15.1	2,188	1,593	795	31.8	434	22.1	8,109	191	53.4
Clev., Cin., Chic. & St. L..1925	16,027	20,401	36,428	3.7	5,046	1,907	894	30.7	574	31.8	9,228	139	61.5
1924	13,401	23,595	36,996	5.2	623	1,913	948	32.1	655	33.6	10,685	144	67.9
Elgin, Joliet & Eastern[3]...1925	9,837	8,758	18,595	8.1	297	2,258	1,137	38.5	288	11.8	11,674	150	58.6
1924	10,068	8,661	18,729	5.6	460	2,302	1,237	41.4	312	11.4	12,700	148	53.2
Long Island 1925	1,928	4,833	6,761	0.7	310	810	320	24.4	70	4.9	1,207	346	37.4
1924	1,667	5,407	7,074	0.9	....	798	313	23.5	67	4.7	1,196	359	38.5
Pennsylvania System 1925	210,250	89,744	299,994	10.2	30,856	1,792	855	31.7	441	21.9	12,104	150	52.7
1924	193,397	113,081	306,478	7.4	26,568	1,739	860	32.4	447	20.9	12,514	165	53.1
Reading 1925	22,428	16,119	38,547	2.4	1,762	1,697	873	36.1	525	24.1	17,885	177	60.3
1924	18,984	16,856	35,840	2.9	....	1,639	853	34.9	540	24.4	16,942	196	58.6
Pocahontas Region:													
Chesapeake & Ohio....1925	30,614	11,656	42,270	3.6	2,872	2,261	1,216	42.5	1,100	45.9	17,933	124	69.2
1924	25,139	13,218	38,357	5.6	1,057	2,195	1,197	41.7	1,086	45.4	16,344	137	73.7
Norfolk & Western....1925	28,858	9,775	38,633	2.7	620	2,381	1,250	42.0	912	35.8	15,830	167	52.9
1924	23,280	11,341	34,621	4.4	....	2,266	1,228	43.4	1,104	42.2	17,131	192	58.6
Southern Region:													
Atlantic Coast Line....1925	21,104	18,149	39,253	4.2	....	1,348	517	20.4	402	31.7	3,268	129	72.8
1924	20,771	16,275	37,046	3.5	....	1,264	496	20.3	391	29.8	2,980	137	69.4
Central of Georgia....1925	4,211	5,762	9,973	5.5	....	1,167	511	22.9	550	32.9	2,879	162	67.8
1924	3,763	5,169	8,932	6.1	....	1,123	522	23.9	601	33.4	2,818	176	66.7
I. C. (inc. Y. & M. V.)...1925	46,057	20,217	66,274	3.6	....	1,742	762	26.6	650	37.4	6,926	146	64.8
1924	39,387	26,564	65,951	4.3	....	1,658	757	28.4	745	40.4	7,930	163	72.5
Louisville & Nashville....1925	41,394	20,803	62,197	8.4	107	1,257	608	32.1	585	29.6	7,232	192	95.9
1924	37,081	20,399	57,480	5.6	80	1,199	592	32.2	627	30.6	7,164	186	94.0
Seaboard Air Line....1925	11,322	13,264	24,586	3.2	400	1,321	529	21.6	400	27.1	2,621	155	71.5
1924	9,352	10,613	19,965	5.2	....	1,212	484	21.1	466	31.7	2,624	166	76.2
Southern Ry. 1925	39,762	22,215	61,977	5.2	....	1,273	521	22.2	421	28.1	3,819	179	54.6
1924	34,945	25,040	59,985	4.4	....	1,222	520	22.7	437	27.2	3,843	197	54.6
Northwestern Region:													
Chic. & North Western....1925	46,722	27,617	74,339	10.5	9,073	1,242	501	22.6	319	22.0	2,806	161	49.4
1924	43,866	35,209	79,075	7.1	3,500	1,227	524	24.9	381	24.1	3,563	185	55.3
Chic., Milw. & St. P....1925	53,857	24,309	78,166	9.2	....	1,519	669	25.1	442	27.0	3,087	171	51.2
1924	49,593	30,255	79,848	6.2	3,000	1,396	642	26.5	488	28.0	3,553	181	58.2
Chic., St. P., Minn. & Om..1925	3,629	11,048	14,677	10.1	1,269	1,064	459	24.1	341	21.1	2,903	167	62.3
1924	3,192	11,005	14,197	8.5	550	1,072	469	24.9	401	24.0	3,297	177	67.8
Great Northern 1925	45,428	11,301	56,729	7.4	....	1,695	784	25.9	331	18.9	2,316	164	33.8
1924	44,246	7,850	52,096	5.7	....	1,716	792	26.1	389	21.4	2,480	162	36.1
Minn., St. P. & S. Ste. M..1925	19,861	6,621	26,482	4.9	870	1,205	553	23.7	354	20.9	2,145	143	51.5
1924	17,879	8,502	26,381	6.5	310	1,166	550	24.3	376	21.3	2,273	145	54.9
Northern Pacific 1925	34,579	7,976	42,555	7.0	....	1,694	789	25.4	452	24.7	2,998	132	38.3
1924	32,591	9,930	42,521	6.5	....	1,663	801	26.4	508	25.6	3,376	132	41.6
Oreg.-Wash. R. R. & Nav..1925	6,288	3,135	9,423	3.3	....	1,515	704	25.3	428	22.7	1,855	199	40.7
1924	6,538	2,973	9,511	5.3	....	1,437	669	26.3	485	25.3	2,118	198	46.2
Central Western Region:													
Atch., Top & S. Fe (incl. 1925	56,096	17,217	73,313	6.7	15,250	1,677	670	22.4	429	28.5	3,140	134	52.1
P. & S. F.)....1924	49,322	15,468	64,790	6.3	10,194	1,595	626	21.5	456	31.3	3,001	149	55.0
Chicago & Alton....1925	9,970	6,474	16,444	3.3	2,000	1,431	631	26.7	360	21.9	5,816	162	67.6
1924	8,785	6,050	14,835	3.0	500	1,375	583	26.4	435	27.1	6,393	192	75.7
Chic., Burl & Quincy....1925	51,710	19,237	70,947	7.6	2,100	1,616	738	26.5	513	29.9	3,908	164	52.2
1924	47,736	26,223	73,959	6.3	....	1,585	727	27.7	558	32.0	4,423	192	60.5
Chic., Rock I. & Pacific...1925	33,239	19,201	52,440	10.7	8,521	1,259	530	21.7	439	28.7	3,061	164	62.4
1924	31,037	20,328	51,365	10.0	4,141	1,210	504	22.2	452	29.8	3,064	195	62.9
Denver & R. G. Wn....1925	11,467	3,807	15,274	5.1	5,012	1,473	710	27.9	315	16.2	1,877	228	33.3
1924	12,284	3,171	15,455	5.7	4,027	1,337	661	28.9	305	14.9	1,810	231	31.7
Oregon Short Line....1925	6,967	4,975	11,942	4.3	....	1,541	703	27.4	533	28.8	2,650	151	45.5
1924	6,592	3,940	10,532	5.7	....	1,463	638	26.9	696	40.3	3,101	156	55.2
Southern Pac. (Pac. Sys.).1925	30,116	30,398	60,514	5.6	11,649	1,757	749	24.8	525	31.0	3,729	139	58.1
1924	25,548	27,325	52,873	4.6	7,051	1,667	698	23.7	600	36.7	3,748	145	63.1
Union Pacific 1925	17,745	7,861	25,606	10.7	....	1,882	815	22.7	793	46.4	5,529	132	48.3
1924	16,020	10,403	26,423	10.8	....	1,822	775	23.1	898	54.5	6,389	149	61.2
Southwestern Region:													
Gulf, Colo. & S. Fe....1925	9,492	5,121	14,613	3.9	2,757	1,776	773	26.0	478	28.7	3,699	117	71.8
1924	8,818	5,074	13,892	4.4	1,893	1,643	713	25.8	453	27.4	3,204	129	62.3
Missouri-Kansas-Texas 1925	8,032	6,384	14,416	4.4	3,429	1,966	782	23.4	416	29.4	3,385	114	53.8
1924	9,458	6,057	15,515	3.8	3,045	1,772	707	22.4	351	24.9	3,026	130	39.7
Mo.-Kans.-Tex. of Tex.....1925	258	13,030	13,288	7.6	2,579	1,588	627	23.3	306	21.7	3,025	115	50.4
1924	228	10,449	10,677	10.0	3,781	1,330	527	22.6	287	20.0	2,208	147	46.6
Missouri Pacific 1925	28,336	22,652	50,988	8.3	....	1,545	682	25.5	610	36.2	4,276	147	78.2
1924	25,154	25,416	50,570	8.9	....	1,480	678	26.0	548	30.8	3,794	159	69.1
St. Louis-San Francisco...1925	19,381	11,637	31,018	5.1	31	1,219	510	24.1	473	30.7	3,141	174	62.1
1924	18,600	13,127	31,727	5.2	....	1,105	471	24.1	403	25.3	2,727	196	56.3
Southern Pacific Lines (in 1925	9,179	14,574	23,753	7.3	2,820	1,389	604	25.0	504	30.0	3,203	123	71.6
Tex. and La.)[2]....1924	7,825	14,686	22,511	5.2	2,479	1,301	567	25.1	523	30.7	3,177	130	72.4
Texas & Pacific....1925	6,746	6,106	12,852	9.8	....	1,445	557	21.6	365	27.3	2,742	142	50.7
1924	5,484	6,074	11,558	8.4	....	1,308	512	21.3	385	28.8	2,601	153	49.8

Compiled by Bureau of Statistics, Interstate Commerce Commission. Subject to revision.

(*Continued from page* 1047)

inflammable materials are handled or stored; except in such buildings or rooms as may be specially provided for that purpose; and if not already done, conspicuous NO SMOKING signs should be posted. All watchmen and guards, officers and other employees in charge of the property should be instructed to see that this rule is rigidly enforced.

"If we restrict the hazard of smoking and prohibit it in valuable properties, we shall do much toward preventing the possibility of large property destruction by fire traceable to preventable causes."

Pullman Car Dressing Rooms Made More Convenient

An innovation which the Pullman Company is placing in its sleeping cars, as an aid to the comfort of passengers, is a seat-back arranged to eliminate crowded conditions in dressing rooms caused by passengers who insist upon occupying the seats in the rooms while others are washing and dressing. The cushion at the back of the long transverse seat is made in two parts, so that its upper half may be turned up to form a shelf extending over the seat, thereby rendering the seat unusable, though it will still serve as a handy receptacle for articles of clothing. The shelf is raised during the period when the dressing rooms are in use, and lowered when they are no longer occupied for dressing purposes. This device has been installed in 50 cars and will be placed in all new cars, as well as in cars taken to the shops.

Pullman-Car Dressing Room—Combined Seat-Back and Shelf

At the left Divided Back. At the right, Part of Back turned up to serve as shelf.

Hearing at Albany on Crossing Signals

At Albany, N. Y., on April 16, the New York State Public Service Commission, represented by C. R. Vanneman, chief engineer, held a hearing on its order, issued to the railroads some weeks ago, calling upon them to show cause why the state should not establish a standard automatic signal for giving warning at highway crossings of the approach of trains. Representatives were present from all of the principal roads of the state, and also some from interurban lines. The testimony, recommendations and discussion all were devoted almost exclusively to the merits and demerits of various arrangements of red lights.

A. H. Rudd, chief signal engineer of the Pennsylvania, was the principal speaker on behalf of the railroads. He represented the Pennsylvania, the Delaware & Hudson, the Delaware, Lackawanna & Western, the Boston & Maine, the New York Central, the Erie, the Long Island, the Ulster & Delaware, the Rutland, the Boston & Albany, the New York, Ontario & Western, the Lehigh Valley, the Buffalo, Rochester & Pittsburgh and the New York, New Haven & Hartford. He advocated the adoption of the specification of the Signal Section of the American Railway Association. This specification recognizes both the flashing light type and the wig-wag; but Mr. Rudd's main argument was devoted to setting forth the distinctive merits of the flashing light signal, having only one small moving part, and its advantages over devices having more moving parts.

The Pennsylvania, the New Haven, the Lehigh Valley, the New York Central and some other roads were recorded as in favor of the flashing light signal. The Erie and one or two others favored the wig-wag; and two roads were satisfied either way, expressing no preference.

Mr. Rudd, declaring that the railroads were in favor of standardization, pointed out the diverse ideas of the authorities of different states, and he suggested that the New York State Commission should have a conference with the commissions of adjoining states, looking toward the adoption of the same standard or standards by all of them. Mr. Rudd also observed that in equity the state or municipality ought to bear a part of the cost of crossing signals.

Locomotive Inspection Bureau's March Report

The Bureau of Locomotive Inspection of the Interstate Commerce Commission in March inspected 6,676 locomotives, of which 3,007, or 45 per cent, were found defective, and 331 were ordered out of service, according to the commission's monthly report to the President on the condition of railroad equipment. The Bureau of Safety during the month inspected 110,475 freight cars, of which 3,696 were found defective, and 2,003 passenger cars, of which 26 were found defective. During March eleven cases, involving 14 violations of the safety appliance acts, were transmitted to various United States attorneys for prosecution.

Pennsylvania Railroad Apprentice School

With the completion of new and enlarged facilities, the scope of the Pennsylvania's apprentice school at Altoona, Pa., has been materially increased, so that approximately 400 apprentices are receiving the benefit of its courses of instruction. The school, which was temporarily discontinued in 1921, was reopened in January of the present year, but was confined to apprentices from the Altoona machine shop only. More room has since been provided by an extension of the building, and in addition to the machine shop boys, the school is now open to regular apprentices from the Juniata shop, the Altoona car shop, the South Altoona foundry, and the Middle Division.

School sessions are held after working hours from 7:00 to 8:30, and 8:30 to 10:00 p. m. on Monday, Tuesday and Wednesday, and from 4:30 to 6:00, 7:00 to 8:30, and 8:30 to 10:00 p. m. on Thursday and Friday, the boys being arranged in sections so that each will be given three hours' school work each week during

the period of his apprenticeship. The curriculum provides for mechanical drawing, mathematics and mechanics bearing on shop work, study of materials of construction which deal with the manufacture of iron and steel, and characteristics of different kinds of steel as used in the shop. The courses are adapted for the apprentices in the trades of the different crafts, such as machinists, boilermakers, pipe fitters, and electricians.

Fuel Association Convention

The program which has been arranged for the seventeenth annual convention of the International Railway Fuel Association to be held at the Hotel Sherman, Chicago, May 26, 27, 28 and 29, is as follows:

TUESDAY, MAY 26

9:30 a.m.—(Daylight saving time). Opening addresses by J. D. Battle, traffic manager, National Coal Association. L. F. Loree, president, Delaware & Hudson. P. E. Bast (president), fuel engineer, Delaware & Hudson.
11:30 a.m.—Adjournment.
2:00 p.m.—Report of secretary-treasurer.
2:10 p.m.—Appointment of Auditing and other Special Committees.
2:20 p.m.—Unfinished business.
2:30 p.m.—New business.
2:40 p.m.—Report of Standing Committee on Fuel Stations.
3:30 p.m.—Report of Standing Committee on Fuel Accounting, Distribution and Statistics.
4:30 p.m.—Signals and the Saving of Fuel, B. J. Schwendt, superintendent of signals, New York Central Lines.
5:30 p.m.—Adjournment.

WEDNESDAY, MAY 27 (OPERATING DAY)

9:00 a.m.—How Can Railroad Management Affect Fuel Economy? A. R. Ayers, assistant general manager, New York, Chicago & St. Louis.
9:30 a.m.—How Can Fuel Purchases Affect Economy? H. C. Pearce, director of purchases and stores, Chesapeake & Ohio.
10:30 a.m.—Stocks, Consumption, and Production of Coal, Mark Kuehn, chairman, Fuel Committee, National Association of Purchasing Agents.
11:15 a.m.—Fundamental Fuel Factors, G. M. Basford.
12:00 m. —Topical discussion, Effect on Fuel Consumption of Recent Developments in Operating Practice.
12:45 p.m.—Adjournment.
2:00 p.m.—Report of Standing Committee on Firing Practice (Oil section).
3:45 p.m.—Report of Standing Committee on Firing Practice (Coal section).
5:30 p.m.—Adjournment.

THURSDAY, MAY 28 (MECHANICAL DAY)

9:00 a.m.—How Can a Mechanical Officer Affect Fuel Economy? John Purcell, assistant to vice-president, Atcheson, Topeka & Santa Fe.
9:30 a.m.—Report of Standing Committee on Feedwater Heaters.
11:00 a.m.—Report of Standing Committee on Front Ends, Grates and Ash Pans.
12:00 m. —Topical discussion.
12:45 p.m.—Adjournment.
2:00 p.m.—Report of Standing Committee on Stationary Plants.
3:00 p.m.—Mechanical Means for Cleaning Locomotive Flues, C. B. Smith, mechanical engineer, Boston & Maine.
3:45 p.m.—Report of Standing Committee on Diesel Locomotives.
4:45 p.m.—Back Pressure as an Index to Fuel Economy, R. W. Retterer, mechanical engineer, Cleveland, Cincinnati, Chicago & St. Louis.
5:30 p.m.—Adjournment.

FRIDAY, MAY 29

9:00 a.m.—The Development of Oil Burning Practices on Locomotives, J. N. Clark, chief fuel supervisor, Southern Pacific Company.
10:00 a.m.—Report of Committee on Tanks.
10:15 a.m.—Report of Standing Committee on Constitution and By-Laws.
10:30 a.m.—Election of officers.
11:00 a.m.—Balloting for place of 1926 meeting.
11:30 a.m.—Convention adjournment.

New York Central Extends Truck Service

The New York Central, which has been operating a motor truck service between Buffalo, N. Y., and Cleveland, Ohio, for one year, extended the handling of l. c. l. freight by motor truck from Cleveland to Toledo on April 20. This service will replace the usual division local way freight trains insofar as the handling of l. c. l. freight is concerned, except where the tonnage warrants loading straight destination cars.

The general plan provides for handling l. c. l. freight from and to railroad freight warehouses at stations on the division by means of motor trucks operating over the highways. These motor trucks will be operated on a regular daily except Sunday schedule, starting from the main division terminal with a view to providing early first morning delivery at railroad freight stations of l. c. l. freight originating at main distributing points, as well as providing service to the producer for movement of products to local market centers. The truck service will be primarily divisional in character.

The truck service will permit more flexible operation, affording a better movement for carload traffic and at the same time reducing local freight train mileage. It will also conserve box car equipment to other uses in time of stringency and increase average tonnage loadings of equipment used in l. c. l. freight traffic.

C. P. R. and C. N. R. Confer on Reducing Costly Competition

An interesting sequence to the many speeches made in the Canadian Parliament this session urging co-operation between the two main railway systems in Canada to eliminate needless and costly duplication of services came late last week when the heads of the two roads publicly stated that tentative negotiations had already been begun in that direction.

Official statement issued by President Beatty, of the C. P. R., was as follows: "The Canadian Pacific Railway is entirely agreeable to any fair re-arrangement of the country's railway services which will tend to reduce uneconomic duplication of services where such exists. Though the train services of this company have been only slightly changed since war time, we are, under existing lessened traffic conditions, anxious to do our full part in working out the situation in a manner which will best serve the interests of Canada as a whole, and with that end in view, certain definite proposals are under discussion between Sir Henry Thornton and myself, which I hope will have satisfactory results."

In connection with this announcement by Mr. Beatty, the following statement was issued yesterday afternoon by Sir Henry W. Thornton:

"I entirely confirm the statement made by Mr. E. W. Beatty, president of the Canadian Pacific Railway, with respect to co-operation between our respective companies, and heartily reciprocate the sentiments he has expressed. The subject has been one frequently discussed between Mr. Beatty and myself for some months, and somewhat recently I made definite proposals to the president of the Canadian Pacific Railway, which, as he says, are under consideration. I join with him in expressing the hope that satisfactory results will ensue."

On this question there were two or three significant speeches in the House of Commons last week. Thomas L. Church, one of the Toronto members, said: "I am opposed to cutting out trains, passenger and freight on certain lines if that is going to result in handing over more and more Canadian National business to the Canadian Pacific. I believe in giving the Canadian National a chance. The time has come, too, to get a sane railway rate policy free of government and legislative control, with equality of treatment and rates fixed from an economic and not from a political standpoint. Agricultural products are carried on a preferential tariff basis, and the grain growers of the West have also favorable rates at less than cost, and other classes of products must pay increased rates in order to extend this boon to the agricultural industry. There should be a revision of rates. Our railways should be run from a commercial point of view and there should be a reclassification. However, as the taxpayers of the country will have to meet the deficit on the system by the payment of taxes the effects of reclassification will not be very marked. Let me point out that there is a lot of waste land belonging to the Canadian National in cities and towns of this country that could be sold and economies effected. There is duplication and waste in many directions which could be prevented."

Some suggestions with a view to economy were also made by another Toronto member, Joseph T. Harris, who said he refused to call the Canadian National a white elephant. "In the first place curtail the expenditure on radio, and eliminate such expenditures as we had within the last year and a half of $250,000 on golf courses. As I said before, withdraw our soliciting trade agents from Europe, and if work has to be done there on behalf of the Canadian National let it be done by our trade commissioners who are already there; let us not have two organizations throughout Europe. Do everything possible to increase our traffic East and West. Do everything possible to increase traffic in merchandise and in products that will bear heavy freight charges, and eliminate as much as possible the shipping out of this country of our raw material."

Safety on the Wabash

The Wabash Railway is one which has not advertised its safety department very loudly, but it showed a very creditable record recently, at a meeting of officers and employees at Moberly, Mo. (March 19) where there was an attendance of over 700 men, women and children—employees and their families. A review of the records of injuries to employees on duty since the safety department was organized, in 1918, shows a reduction in total casualties from 250 a month in 1918 to about half that number in 1923, and a still further remarkable diminution in 1924. The figures are:

	Killed	Injured	Average casualties per million man-hours worked
1923	26	1,507	33.47
1924	15	779	17.38

For the past 15 months safety meetings have been held bi-monthly at the terminal and division headquarters and at each of the large shops; and in addition mass meetings have been frequent.

The principal shops of the company, which are at Moberly, Mo., and Decatur, Ill., competing for a banner in a contest, were able to report total reportable accidents as follows:

	1923	1924
Moberly	167	25
Decatur	327	51
	494	76

One of the features of the explanation of this very efficient safety work is that the division officers take the same interest in this department as they do in any other for which they are responsible, as for example, the supervision of train movements or care of property.

A feature of the meeting of March 19 was an address by Mrs. W. F. Pace, wife of one of the trainmen, who reviewed the safety problems of the Wabash in a businesslike manner. Mrs. Pace not only gave evidence of judgment and insight, but also showed skill in making her ideas clear to her audience. She talks like one who is not only the wife of a railroader but also a daughter of one. She said, in part:

We should play safe at home. Women know that they should never light a gas oven without both doors open, yet they do. They have been cautioned to hang up all oil dust mops so as to have a free circulation of air, and still some persist in piling those things down in a close closet and spontaneous combustion is the result. Some carelessly leave poison medicine in the reach of children.

Accidents have been caused by electric heated pads setting bed clothing on fire. Children's hands have been caught in electric fans. Women have had their clothing and hair caught in an electric wringer. All of which can be avoided with a little common sense. We ladies don't realize how far-reaching our influence is. If by our constant daily practice of safety in the home, we have instilled habits of safety in the mind of husband, son or brother, and have tactfully admonished him to play safe in his work and have been the direct cause of saving life or limb, don't you think it worth the effort? * * * Safety work must include the children. In more than 300 cities of the United States pupils are taught from text books about street risks, fires, weapons, drownings, and other accidents; about how to avoid them and what to do if the emergency arises. They actually dramatize accident situations. They even place a safety patrol around the school yard before and after school to direct the rest across the street. In St. Louis in one of the schools they have a junior safety council.

If safety is preached and practiced in the home the employee's attitude of carelessness will soon be changed to one of cautiousness. But this education should not come in dabs, now and then; nor by cramming, but be carried out under a systematic program.

The cause of many accidents is the failure of mind and muscle to co-ordinate, failure of the subconscious mind. One must be able to rise to any emergency without stopping to think about it, for fractions of a second count. One has no time to yield to panic or become emotional. A person of a nervous, emotional, fearful nature has no business in the transportation service. But often this can be overcome by experience, education and will power.

Annual Meeting, U. S. Chamber of Commerce

A number of transportation subjects appear on the program for the thirteenth annual meeting of the Chamber of Commerce of the United States, to be held at Washington, May 20, 21 and 22. These questions will be taken up in general sessions of the convention and in a special transportation group meeting to be held on May 21.

At the transportation group session some outstanding transportation problems will be presented by leaders in this field. Carl R. Gray, president of the Union Pacific, will outline the most important current developments in the railway field, and measures for increasing the efficiency of the country's transportation system. W. D. B. Ainey, of Pennsylvania, president of the National Association of Railroad and Utilities Commissioners, will present the subject of "Regulation of Motor Carriers in Interstate Commerce" and "Metropolitan Traffic Prob. lems" will be discussed by Elmer Stevens, chairman of the city traffic committee of the Chicago Association of Commerce.

"Congress and the American Public" will be the subject of an address by Hon. Samuel Winslow, of Massachusetts, who, until his recent retirement from Congress, had for four years been chairman of the House committee on interstate commerce. This address will be at the opening general session of the annual meeting on the morning of Wednesday, May 20.

Safety Section to Meet at Chicago

The fifth annual meeting of the Safety Section of the American Railway Association will be held at Hotel Morrison, Chicago, on Tuesday, Wednesday and Thursday, April 28, 29 and 30. There will be a luncheon on Tuesday noon at which president R. H. Aishton will speak.

Following are the principal items on the program:

TUESDAY MORNING

The Safety Section's Accomplishments; by H. A. Adams (U. P.), chairman of the section; response by Isaiah Hale (A. T. & S. F.).
The Safety Section and the Labor Board by E. P. Morrow (U. S. R. B. L. B.).
Report of Committee on Statistics, by T. H. Carrow, (Penn.); Discussion by L. R. Palmer.

TUESDAY AFTERNOON

Annual report by J. C. Caviston, secretary of the section.
Accident Prevention in The Transportation Department, F. H. Hammill (C. R. I. & P.); Rules and Their Enforcement by J. J. Heavey, (Erie).
Additional Methods in Accident Prevention by T. P. Brennan (Long Island).
Maintenance of Equipment; by Frank McManamy, (I. C. C.).
Report of Committee on Highway Crossing Accidents, H. A. Rowe (D., L. & W.), chairman.
Discussion by C. E. Hill (N. Y. C.) and J. L. Walsh (M.-K.-T.).

WEDNESDAY MORNING

Accidents in the Department of Maintenance of Equipment and the Stores Department; by A. C. Hinckley (O. S. L.).
Discussion by F. Hartenstien (L. V.); J. A. McNally (Wabash); C. T. Bailey (O. S. L.) and E. R. Cott (H. V.).
Object Lessons in Selling Safety; by A. D. Gans (B. & O.); Discussion by F. M. Metcalfe (N. P.).
Motion Pictures, by C. E. Hill (N. Y. C.).

WEDNESDAY AFTERNOON

Exit Facilities to Prevent Loss of Life in Fires by E. S. Chapin (Penn.)
Election of Officers.

THURSDAY MORNING

Railroad safety from the public viewpoint; by George M. Graham, president of the Chandler Motor Car Company.
Accidents in the Maintenance of Way and Structures Department; by H. E. Dickinson (C. & N. W.); Discussion by L. F. Shedd (C. R. I. & P.).
Duties of the Safety Supervisor; by J. B. Monahan (S. P.).

THURSDAY AFTERNOON

State officers' viewpoint of the grade crossing question; by Frank T. Singleton (P. S. C. of Indiana). Discussion by H. M. Mayo (S. P.).
Track Car Accidents by C. L. LaFountaine (G. N.).

"ESPECIALLY WOMEN AND CHILDREN."—This phrase, which is common in railroad courtesy-rules, had an illustration recently on the Pennsylvania. While train No. 8261, Baltimore Division, was standing in York passenger station, preparatory to leaving for Lancaster, Conrad Staab, car inspector, was approached by a lady passenger, inquiring if it would be possible for her to have a bottle of milk warmed to a certain temperature for her little child. He told her that their equipment was not intended for this line of work, but he thought he would be able to accommodate her. He then took the bottle of milk to the engine and Engineer King, and Fireman Allison took a piece of clean waste, wrapped it around the bottle, and ran warm water over it from the sprinkling-hose; guessed the temperature and returned the bottle to the lady, Inspector Staab acting as porter. She thanked the crew very kindly, and was well pleased at the service she received.

Traffic News

The Baltimore & Ohio has concluded arrangements with the Pennsylvania for continuation of the use of the Pennsylvania's New York passenger station to September 1, 1926.

The Louisville & Nashville will put on a daily train to be known as the Atlanta Limited between St. Louis, Mo., and Atlanta, Ga., on April 27. It will leave St. Louis at 3:36 p. m. and arrive in Atlanta at 10:59 a. m.

The application of the Fort Worth & Denver City for permission to operate its trains from Fort Worth, Texas, to Dallas, over the tracks of the Rock Island, and to use the facilities of the Union Terminal at Dallas, has been granted by the Railroad Commission of Texas.

The Atlantic States Shippers' Advisory Board held its regular meeting at Philadelphia on April 9, with an attendance of about 600. The usual reports were made by the principal railroads of the region, showing uniformly good conditions. The meeting was addressed by Hon. C. B. Aitchison, chairman of the Interstate Commerce Commission, and E. T. Stotesbury, chairman of the Reading Company.

The Rutland-Lake Michigan Transit Company, Chicago, will extend its package service on May 1 to include its new all-water route from Chicago to Montreal without transshipment. The time from Chicago to Montreal will be 6½ days. There will be two sailings eastbound and two westbound each week. Ports of call will be the Municipal Pier, Chicago, 16 W. Water street, Milwaukee, Wis., Fairport, Ohio, Oswego, N. Y., Ogdensburg, N. Y., Brockville, Ont., and Alexandra Pier, Montreal.

At the meeting of the Associated Traffic Clubs of America at Kansas City, Mo., on April 16, officers elected were, president, H. A. Palmer, Chicago; secretary, F. A. Doebber, Indianapolis, Ind.; treasurer, W. T. Vandenburg, Louisville, Ky.; first vice-president, T. T. Webster, Dayton, Ohio; second vice-president, W. C. Fitch, San Francisco, Cal.; third vice-president, T. B. Curtis, Atlanta, Ga.; and fourth vice-president, B. L. Birkholz, New York. The next meeting will be held in Louisville, Ky., on October 14 and 15.

The Union Pacific has appropriated $950,000 for advertising the west during 1925, most of which will be devoted to Oregon and Washington. Besides newspaper and magazine advertising and the work of the land settlement committee, 500,000 picture postcards will be printed for the use of passengers in dining and observation cars. The Union Pacific is now exploiting Zion National Park, Bryce Canyon, Cedar Breaks, Kiabab forest and the north rim of the Grand Canyon. Heretofore passengers wishing to see the Grand Canyon have gone by way of Los Angeles but now it is possible to see southern Utah and the Grand Canyon country by a convenient side trip from Salt Lake City or Ogden, Utah. Passengers can be routed to Portland with side trips to Rocky Mountain National Park near Denver, to southern Utah with a side trip from Ogden or Salt Lake City and to Yellowstone with a side trip from Pocatello, requiring in each not more than an overnight trip from the main line.

Commodity Loading Statistics for 1924, 1923 and 1922

The Car Service Division of the American Railway Association has just published with unusual promptness after the close of the year a special commodity loading statement, covering the years 1924, 1923 and 1922, showing by commodities, districts and roads the average tons per loaded car of carload freight during those years. For 1924 the average load per car was 34 tons, as compared with 34.5 tons in 1923 and 33.2 tons in 1922. The reports are classified according to the Interstate Commerce Commission commodity classification, the A. R. A., districts, and by roads originating 500 or more carloads of specified commodities in 1924, arranged in numerical order. The highest average reported for 1924 was that of the Virginian and the Bingham & Garfield, which each reported an average for the year of 65.8 tons.

For products of agriculture the average load per car in 1924 was 24.4 tons, as compared with 24.1 tons in 1923 and 24.6 tons in 1922. For animals and products the average was 11.8 in 1924, 11.7 in 1923, and 11.8 in 1922. For products of mines the average was 49.7 in 1924, 49.1 in 1923, and 48.7 in 1922. For products of forests the average was 28.1 in 1924, 28.4 in 1923, and 27.6 in 1922. For manufactures and miscellaneous the average was 25.9 in 1924, 26 in 1923 and 25.7 in 1922.

Pullman Cars on the Central of Georgia

The Central of Georgia announces that beginning with May 1 the sleeping and parlor cars of the company will be superseded by cars of the Pullman Company. The Central of Georgia has owned and operated the sleeping cars in service on its line since 1880; but, says the announcement, the Central, like most other roads, finds that it needs the advantages to be had from running the cars of the Pullman Company, which go freely everywhere.

Missouri Pacific Installs Train Location Bureau

A train location bureau, the function of which is to speed up service on all trains, particularly passenger and redball freight trains and specials handling high grade commodities, has been installed in the office of the superintendent of transportation of the Missouri Pacific to cover the whole system. Among the details supervised are the investigation of delays to all traffic, the tracing of packing house peddler cars, the handling of refrigeration, etc. The novel feature of the bureau is the four-hour train-sheet, which is similar in form to the one kept ordinarily by dispatchers. The form is intended to visualize at all times the location of trains, to indicate delays to which they have been subjected en route, with explanation thereof, tonnage figures and data as to temperatures, weather conditions, and the like. The designation of each train is shown, together with its present location, how much late or ahead, the time received from connection or connecting division and how much late or ahead. As the name implies, at four-hour intervals information received from division forces is taken from this sheet and furnished from the central point to the officers interested. This centralization of data is estimated by the superintendent of telegraph to have increased the efficiency of his department by the equivalent of two eight-hour telegraphers.

The sending out of this four-hour data on the performance of trains frequently results in the saving of locomotive power. If a certain division ascertains that a given train will come in, for example, three hours late, the engine reserved for that train can probably be used on a train leaving at an earlier hour.

Successful Co-operation with Shippers

That co-operation between railroads and shippers in the western territory in adjusting freight rate difficulties without going before regulatory tribunals has been definitely established, is shown by an agreement recently reached in Chicago. The plan of co-operation is an outgrowth of protests made by shippers at a public hearing on November 24, last, upon the carriers' announced readjustment of rates from Indiana points to the Northwest and to Missouri river points as a result of decisions of the Interstate Commerce Commission. Following the filing of tariffs by the railroads the shippers presented a resolution to railroad executives, seeking co-operation in the working out of these rate structures in a manner that would be mutually satisfactory. The railroads then petitioned the Interstate Commerce Commission for the temporary suspension of the tariffs, which had been filed to become effective January 31, 1925. After conferences with shippers the railroads filed petitions with the commission for authority to withdraw the suspended tariffs, which authority was granted.

When the conferees of the shippers and railroads were unable to adjust all differences, W. V. Hardie, director of traffic of the Interstate Commerce Commission, was invited to participate in the negotiations, as a friend of all parties, and to submit his recommendation for a temporary adjustment, to be in effect pending the working out of the more comprehensive permanent adjustment. He recommended a complicance with the decisions of the commission by a compromise adjustment for temporary application. He also recommended immediate joint action toward a revision of rates for permanent application.

The shippers' committee, after considering the recommendation of Mr. Hardie, called a general meeting of interested receivers,

shippers, and commercial organizations on March 25 at the Hotel LaSalle, Chicago, and offered as its judgment the recommendation that the suggestions of Mr. Hardie, with slight modifications, be accepted. The committee's constituents confirmed this. The railroads also accepted the proposal and new tariffs are now in the course of preparation. The general meeting of shippers also authorized the organization of a permanent "steering committee" to continue negotiations with the carriers in accordance with one of the recommendations of Mr. Hardie, which reads as follows: "Carriers and shippers agree to enter at once into negotiations leading to a permanent adjustment of the whole situation here covered together with points east and west of the territory here covered, as may be necessary to bring about a comprehensive adjustment, and further agree to advise the commission not later than May 15 of the progress made, the likelihood of final agreement, and apparent further time during which such negotiations should continue in hope of reaching an agreement."

Increased Activities of Missouri Pacific Boosters

The Boosters' organization on the Missouri Pacific is increasing its size and broadening its activities in keeping with the enthusiasm of its members. During recent months meetings held at many points along the line have broken all attendance records and special boosters' trains have met with enthusiastic receptions. The Central Kansas division boosters operated a special booster train from Osawatomie, Kans., to Council Grove on March 21, with 455 boosters aboard. The train was greeted at every station by large numbers of townspeople. The trip ended with a program in the high school auditorium in Council Grove.

The White River Booster Club at Cotter, Ark., is devoting its attention particularly to writing letters to friends not in the White River district, urging them to spend their vacations in that country. The boosters on the Little Rock division have held regular meetings, the attendance at one on March 18 being 120. The staff meeting of mechanical officers at North Little Rock, Ark., on March 14, was served with a luncheon by the North Little Rock Women's Booster Club. The Women's Booster Club also entertained 400 employees and their families on March 18 at which time a demonstration was given for the apprentice school. A total attendance of 756 was reported at the seven meetings in March.

At a booster meeting in Charleston, Mo., on March 17, a number of suggestions for securing new business and improving the booster organization were made. Other booster meetings with correspondingly large attendance have been held in Jefferson City, Mo., Pleasant Hill, Sedalia, Dupo, Ill., Joplin, Mo., Wichita, Kans., St. Joseph, Mo., Omaha, Neb., Kansas City, Mo., Haskell, Ark., and other points. A special train was run from Joplin, Mo., to Nevada.

Freight Rates on Steel Reduced

The Interstate Commerce Commission has rendered a decision finding that fifth class rates for the transportation of manufactured iron and steel articles, in carloads, from points in the Pittsburgh district to St. Louis and points in Illinois and Indiana are unreasonable and unduly prejudicial and that commodity rates from Illinois and Indiana points to the same destination are unduly preferential. A basis of reasonable and non-prejudicial rates for the future is prescribed in the form of a distance scale. The case was instituted by a complaint of the Jones & Laughlin Steel Corporation, which stated that for a good many years it had contemplated an attack upon the fifth class rates but that the proceeding had been deferred because of a desire not to reduce the carriers' revenues at a time when they could ill afford it.

The commission has rendered a decision finding that proposed joint rates on grain, grain products and articles taking the same rates, in carloads, lower by from 4 to 7 cents than existing combinations on intermediate markets, from points in Minnesota, Iowa and Missouri on the Chicago Great Western and certain connecting short lines, to destinations in Texas, result in undue prejudice, in certain instances, to Omaha; but in all other instances to have been justified. The Omaha Grain Exchange had protested because routing via Omaha was not permitted by the tariffs. The commission, referring to the Hoch-Smith resolution, says that lawful changes in these rates can be effected with the "least practicable delay" if respondents are afforded an opportunity to obviate undue prejudice to Omaha contemporaneously with the taking effect of the rates.

Railroad Passenger Traffic to and From New York

The New York State Transit Commission, in a statement summarizing for the year 1924 the passenger traffic to and from New York City, estimates a total, in and out, of 989,000 a day; and the total for the year is twelve millions more than in 1923.

The number of commuters entering and leaving the city on the different railroads in 1924 was 154,753,827. Adding the local or rapid transit passengers carried by the Hudson & Manhattan tubes, largely commuting in character, and the local ferry passengers, the commission calculated a grand total of railroad and ferry commuters of 247,634,613.

Allowing for Sundays and holidays and using a traffic year of 340 days as a divisor, there was an average of 728,307 daily commuting trips in and out of the city, while the total daily traffic averaged 989,617 passengers. The commission estimated from these figures the number of commuters as 364,153 and the number of daily visitors, including some from the commuting zone who paid full fare, at 130,650.

The trunk line traffic amounted to 243,589,271 passengers, as compared with 233,755,434 in 1923, an increase of 9,833,837 passengers, or 4.2 per cent.

The Hudson & Manhattan tubes brought in or carried out a total of 42,367,360 local or rapid transit passengers, excluding those received from the trunk lines already included in the railroad figures. Including ferry traffic and again excluding railroad passengers already counted, the total traffic into and out of the city amounted to 336,470,057 passengers, an increase of about 12,000,000 over 1923.

By roads the figures show:

	1923	1924
Baltimore & Ohio	620,000	550,000
Central of New Jersey	15,752,834	15,776,662
Delaware, Lackawanna & Western	22,201,447	22,359,818
Erie	30,889,917	32,043,150
Lehigh Valley	743,502	755,676
Long Island	60,766,867	75,000,887
New Haven	17,666,194	18,339,242
New York Central	30,025,529	31,717,518
New York, Ontario & Western	551,753	544,365
New York, Western & Boston	5,796,093	6,045,424
Pennsylvania	39,741,298	40,456,529
Totals	233,755,434	243,589,271

The Long Island Railroad continues to stand first among the steam railroad lines in the number of passengers brought into and out of the city. Of the Long Island's total of 75,000,887 more than half entered and left the Flatbush avenue terminal in Brooklyn.

The Long Island traffic in and out of the Pennsylvania Station, Manhattan, totaled 32,898,590 passengers, more than three times the traffic of the Pennsylvania at that station. The traffic at the Flatbush avenue station exceeded the combined traffic of the New York Central and the New York, New Haven & Hartford at the Grand Central Terminal.

The following table shows the traffic for the year at the principal railroad terminals in New York City:

Grand Central—	
New York Central	22,439,299
New York, New Haven & Hartford	17,738,914
Total—Grand Central	40,178,213
Pennsylvania Station—	
Pennsylvania	10,171,157
Long Island	32,898,590
Baltimore & Ohio	550,000
Lehigh Valley	495,263
New York, New Haven & Hartford	505,301
Total—Pennsylvania Station	44,620,311
Hudson & Manhattan—	
Cortlandt Street	66,192,941
Uptown stations	37,496,357
Long Island Railroad—	
Flatbush Avenue Station	40,915,057
Long Island City	1,187,240
Staten Island R. T. Co.—	
St. George Terminal	11,828,314

Ferry traffic in and out of New York City during 1924 rose to a total of 99,454,001 passengers, an increase of nearly 2,000,000. The St. George-Battery ferry, the most important of the municipal lines, carried 24,519,148 passengers, an increase of more than a million, and 850,848 vehicles, an increase of approximately 37,000. The municipal ferries all told carried 33,816,736 passengers, an increase of 677,862, and 2,059,972 vehicles, an increase of 110,375.

Ferries other than municipal carried a total of 99,454,001 passengers. The Hudson River ferries of the Pennsylvania Railroad carried 2,186,144 vehicles, a decrease of 10,000; the Dyckman transported 520,114 vehicles, an increase of nearly 49,000,

and the Elizabethport ferry with a vehicular traffic of 287,103 showed an increase of about 40,000 vehicles.

Freight Commodity Statistics for 1924

The total tonnage of freight transported as shown in the reports of Class I railroads for the year 1924 amounted to 2,171,777,301 tons, a reduction of 6.93 per cent as compared with the tonnage for 1923, according to the Interstate Commerce Commission's quarterly report of freight commodity statistics covering the year. Products of agriculture was the only class of commodities to show an increase. For the last quarter of the year the total tons carried showed an increase of 1.06 per cent.

TOTAL FREIGHT MOVEMENT 1924 AND 1923

Classes of Commodities	Number of tons originated: Quarter ended Dec. 31, 1923	Quarter ended Dec. 31, 1924	Per cent of decrease 1924 from 1923
Products of agriculture...	36,442,169	40,724,099	*11.75
Animals and products....	7,901,944	7,804,570	1.23
Products of mines.....	174,617,308	171,153,101	1.98
Products of forests.....	26,891,646	25,996,550	3.33
Manufactures and miscellaneous	62,438,438	64,367,662	*3.09
All l. c. l. freight.....	10,957,505	10,443,805	4.69
Total	319,249,010	320,489,787	*.39
	Total tons carried		
Products of agriculture...	70,570,207	75,700,595	*7.27
Animals and products....	13,530,922	13,411,884	.88
Products of mines.....	304,137,986	304,606,027	*.15
Products of forests.....	51,808,812	50,569,681	2.39
Manufactures and miscellaneous	123,279,110	125,923,922	*2.15
All l. c. l. freight.....	18,426,631	17,711,083	3.88
Total	581,753,668	587,923,192	*1.06
	Number of tons originated		
Products of agriculture...	Year ended Dec. 31, 1923: 109,317,655	Year ended Dec. 31, 1924: 116,579,252	Per cent of decrease 1924 from 1923: *6.64
Animals and products.....	28,254,446	27,749,108	1.79
Products of mines.....	713,734,824	638,519,519	10.54
Products of forests.....	115,617,993	108,089,648	6.51
Manufactures and miscellaneous	267,766,748	256,667,691	4.15
All l. c. l. freight.....	44,338,556	40,551,443	8.54
Total	1,279,030,222	1,188,156,661	7.10
	Total tons carried		
Products of agriculture...	220,489,536	230,860,126	*4.70
Animals and products....	48,873,197	48,523,629	.72
Products of mines.....	1,250,245,258	1,114,662,945	10.84
Products of forests.....	222,561,537	209,363,109	5.93
Manufactures and miscellaneous	517,845,804	500,290,118	3.39
All l. c. l. freight.....	73,585,432	68,077,374	7.49
Total	2,333,600,764	2,171,777,301	6.93

*Increase.

Interior View of the Storehouse of the Bessemer & Lake Erie, Greenville, Pa.—the Aisles and Spaces Between the Shelves Are Exceptionally Wide, Allowing Plenty of Room for the Handling of Material

Commission and Court News

Interstate Commerce Commission

The Commission has denied a petition of the state of Alabama that its proceeding in the matter of consolidation of the railway properties of the United States into a limited number of systems be reopened for further hearing.

Court News

Alighting Passenger Permitted to Stay in Station

The Michigan Supreme Court holds that a passenger who has left a train to continue his journey on that of a connecting railroad, and who is given express permission to remain during inclement weather in the station where he alighted is an invitee for whom the railroad was required to keep its premises in a reasonably safe condition, and not merely a licensee.—Sink v. Grand Trunk (Mich.) 198 N. W. 238.

United States Supreme Court

Construction of Act of 1874 as to Lien Lands

The Supreme Court of the United States holds, affirming a judgment of the Court of Appeals of the District of Columbia dismissing a bill by the Santa Fe Pacific to enjoin the Secretary of the Interior from cancelling a certain selection of lien lands under the Act of 1874, because the land applied for was embraced in a coal withdrawal, that "as the lands which the railroad companies were invited to relinquish could not be known coal lands, it is not to be inferred that Congress intended that the railroad companies should in compensation acquire coal lands by their lien selections."

This construction of the Act of 1874 accords, the court says, with the action of the Department of the Interior since its passage. The court was not required to decide upon the claim of the Secretary of the Interior that the discretion vested in him by Congress in supervising the selection of lien lands and in executing the laws of 1866 and 1874 is quasi judicial, and may not be controlled through mandamus or injunction by the courts, unless his conclusion can be said to be capricious or arbitrary, or so unreasonable as not to be debatable. —Santa Fe Pacific v. Work. Decided April 13, 1925. Opinion by Mr. Chief Justice Taft.

Federal Employers' Liability Act

A citizen of the United States, employed on a passenger train operated by the New York Central between Malone, N. Y., and Montreal, was fatally injured at a point thirty miles north of the international line. His administrator, also a citizen of the United States, claiming damages under the Federal Employers' Liability Act, brought an action in the federal district court for Massachusetts and recovered a judgment for $3,000. This went for review to the Circuit Court of Appeals, First Circuit, which certified the case to the Supreme Court of the United States.

The Supreme Court says, in part: "The statute under consideration only undertakes to impose liability for negligence, which must be shown by proof. It contains no words which definitely disclose an intention to give it extraterritorial effect, nor do the circumstances require an inference of such purpose. Legislation is presumptively territorial and confined to limits over which the law-making power has jurisdiction. The general and almost universal rule is that the character of an act as lawful or unlawful must be determined wholly by the law of the country where the act is done.

"Under the circumstances disclosed the administrator had no right of action based upon the Federal Employers' Liability Act."—N. Y. C. v. Chisholm. Decided April 13, 1925. Opinion by Mr. Justice McReynolds.

Labor News

An increase in wages of two cents an hour has been granted by the United States Railroad Labor Board to telegraphers on the Great Northern and the Union Pacific. The request of the telegraphers on the Northern Pacific, which was also involved in the dispute, for similar increases, was denied by the board. Station agents at non-telegraph stations on all three roads were also denied increases.

Boston & Maine Employees Granted Wage Increases

The Railroad Labor Board has granted wage increases of two cents an hour to bridge and building mechanics and one cent an hour to bridge and building mechanics' helpers on the Boston & Maine. Stationary engineers and drawbridge engineers of the same road were granted an increase of two cents an hour and stationary firemen and oilers were granted an increase of one cent an hour.

Labor Board Decisions

Extension of Switching Districts

In a dispute between the Missouri-Kansas-Texas and the Brotherhood of Locomotive Engineers and the Brotherhood of Locomotive Firemen and Enginemen, the Railroad Labor Board concedes the right of the management to change the location of yard limit boards for operating purposes but stipulates that such changes which affect the compensation of employees should be the subject of negotiation between the representatives of the carriers and of the employees.—*Decision No.* 3172.

Representatives of Clerks of Chicago Union Station

The Railroad Labor Board has ordered an election held by the clerical employees of the Chicago Union Station Company to determine who shall represent them in negotiations with the management. The order was handed down at the request of the Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employees, which is attempting to regain the position of representative of the Chicago Union Station clerical employees that it lost four years ago when a company organization was formed.—*Decision No.* 3101.

Requirement of Physical Examination

The Railroad Labor Board has denied the claim of an engineman on the Missouri-Kansas-Texas for 82 days' pay to cover time he was held out of service on account of his having declined to subject himself to a physical examination. The decision was rendered in a dispute between the Missouri-Kansas-Texas and the Brotherhood of Locomotive Engineers and the Brotherhood of Locomotive Firemen and Enginemen. The engineman in question secured leave of absence of one year and upon returning to the company's service was informed that he would have to stand a physical examination before he could re-enter the company's service. This he declined to do, remaining out of the service for 82 days.—*Decision No.* 3170.

Contracting of Refrigerator Car Icing

The Railroad Labor Board has denied the claim of the employees of the Denver & Rio Grande Western, represented by the Brotherhood of Railway and Steamship Clerks, that the railway violated the Transportation Act in contracting for the icing of refrigerator cars at Denver freight stations and other stations. The employees claimed that the icing of cars is railroad work and that the only object in contracting it was to avoid the application of rules contained in the agreement with the brotherhood. The management contended, however, that the icing of refrigerator cars at Denver freight stations is seasonal and temporary in character and during the season of fruit and vegetable shipments requires considerable extra work formerly taken care of by working the force of freight-house truckers overtime and at some points using section forces to assist in the work. In its decision the Labor Board recognized that the icing of cars under contract has been a common practice for years and also that no employees were removed from the service as a result of the contracting of the work.—*Decision No.* 3217.

Switching By Through Freight Crews

The Railroad Labor Board has sustained the claim of the train crew of a through freight train on the Chicago, St. Paul, Minneapolis & Omaha, for the switch-train rate of pay on a day when they were required to spot coal and pull empties from a coal shed. The employees contended that in view of this fact they were required to perform two classes of road service, through freight and switch-train on that day and were therefore entitled to the higher of the two rates of pay. The management contended that there was no provision in the schedule that called for the switch-train rate, as claimed, for doing work of this kind in an emergency. In a dissenting opinion, Horace Baker and Samuel Higgins, members of the board, declared that spotting cars at one station by through freight trains cannot be construed as general station switching.—*Decision No.* 3197.

Effect of Type of Engine on Hostlers' Compensation

The Railroad Labor Board has decided that hostlers operating a small standard engine, which was rebuilt with the tank on top of the boiler and the coal space an integral part of the locomotive, used in switching and shifting engines at the roundhouse of the Missouri-Kansas-Texas at Parsons, Kan., shall be paid the engineers' rate for such service. The Labor Board denied the contention of the employees that two days' pay for each day of service is required in view of their contention that the engine is a shop-yard engine and that when hostlers are used to operate it during the course of their assignment as hostlers, they are entitled to not less than a minimum day as a hostler and in addition a minimum day as switch engineer under the engineers' contract. The management contended that the engines could not properly be regarded as yard engines. The management also contended that the shifting, handling and moving of engines in and about the roundhouse and roundhouse zone is work properly coming within the scope of employment of hostlers, that it is wholly immaterial what class of engine is used in the handling of such work.—*Decision No.* 3171.

Wages of Trainmen on Through-Freight Trains

The Railroad Labor Board has ruled that the setting out or picking up of cars as a result of hot boxes, broken draw gear, etc., is not to be considered as having a bearing upon the wage rates of the trainmen, in a dispute between the Chicago, Rock Island & Pacific and the Order of Railway Conductors and the Brotherhood of Railroad Trainmen over the proper application of Section (d), Article V, of the trainmen's agreement. The section referred to provides for local-freight wage rates for through-freight trainmen when required to "set out or pick up at four stations." The employees contended that this includes all set outs or pick ups for whatever purpose. The management, however, contended that to "concede that emergency defects are within the scope of the compensation rule originally intended for normal conditions would establish a precedent that might be prejudicial to proper and economical operation." In the opinion of the Labor Board, setting out of cars by reason of hot or broken journals or defective draft gear or brake rigging, is not work such as would in any way determine whether a train could be properly classed as a through- or local-freight train. It therefore upheld the position of the management.—*Decision No.* 3113.

Working Rules for Dining-Car Conductors

The following rules to govern the working conditions of dining-car conductors have been handed down by the Railroad Labor Board in a decision on a dispute between the Brotherhood of Dining-Car Conductors and the Chicago, Burlington & Quincy. In the decision, which includes only that portion of the dispute relative to the compensation rules and remands the others to the interested parties for further negotiation, it has been decided that there shall be no change in rates of pay or basis of compensation of dining-car conductors at this time. In regard to the basic month, 240 hours work shall constitute a basic month's service,

deadhead hours properly authorized to be counted as service hours. Even though a regular assignment is less than 240 hours work per month, deduction will not be made from the monthly wage. Service time shall be computed as continuous for each trip from the time required to report for duty until release. However, the representatives of the management and of the employees' organization shall agree upon and designate deductions to be made for sleep periods en route and for rest at release point. When release from duty is less than one hour, no deduction will be made from the continuity of time. Conductors will be credited with all hours worked each month and will be paid overtime at pro-rata hourly rates for all time worked each month in excess of 240 hours. Time in excess of 270 hours in the recognized month shall be paid for at the rate of time and one-half.—*Decision No.* 3082.

Irregular Hours Justified by Emergency

In carrying out the maintenance and repair of the tunnel at the west approach of the Eads bridge the Terminal Railroad Association of St. Louis required track and bridge gangs to work in three eight-hour shifts, some of them being compelled to report at 3:30 p. m. and others at 11:30 p. m. The position of the United Brotherhood of Maintenance of Way Employees and Railway Shop Laborers was that the railroad should not have introduced these changes in the hours of employment without consulting the representatives of the employees, in accordance with the rule governing the hour of the starting time of the working period. A demand was also made for overtime for all hours employed outside of the regular working period. The contention of the carrier was that the work was of an emergency nature, that the two tracks in the tunnel constitute two of the busiest thoroughfares on the system and that the repair work must be done at times when it will result in the least detention of traffic. This led to the plan of dividing the forces into three shifts covering the 24-hour period. The decision of the board was that evidence did not indicate the violation of any rules of the agreement by the carrier and that the employees are entitled to overtime rate only for such service as was in excess of 8 hours in any 24-hour period, but that they must be reimbursed for any wages lost in consequence of the shift being made from one time of day to another.—*Decision No.* 3121.

Status of Crossing Watchmen

The railroad Labor Board has denied the contentions of the Order of Railway Conductors and the Brotherhood of Railroad Trainmen in one decision, and of the Order of Railroad Telegraphers in another decision, that crossing watchmen employed on the Chicago Great Western at Main street, St. Joseph, Mo., should be classified either as switch tenders or as telegraphers. The claim of the trainmen that they should be classified as switchmen was based on the fact that they occasionally operate one switch. The Order of Telegraphers contended that they should be classified as telegraphers since they operate a one-blade signal, mechanically operated by a crank attached to the pole, and occasionally use a telephone connected with the Chicago Great Western yard office and the Chicago, Burlington & Quincy's switch tender's shanty. The employees contended that the signal referred to is a train-order semaphore and that these men are blocking freight and passenger trains by use of a telephone in connection with a similar office of the Burlington; also that they occasionally receive train-orders and messages in addition to operating the positive block and that therefore they should be reclassified as telegraphers. The management denied that the employees are blocking trains within the meaning of the rules governing such service and stated that the employees are not qualified to act in such capacity. No block records are kept and the signal referred to is not a train-order semaphore since it is not used to stop or hold trains for train-orders, nor is it a block signal within the meaning of the rule, according to the management's contention. The management also denied that the employees received train-orders or messages of record and stated that the only communications of this character that they handle are telephone messages to members of crews working in the vicinity as a matter of convenience to such employees, and that no record of such messages is taken. The position of the management that the employees in question are primarily crossing watchmen and should continue to be classified as such, was upheld by the Labor Board in both decisions.—*Decision No.* 3164 *and* 3165.

Foreign Railway News

Twenty-four Killed in Derailment in Spain

Twenty-four passengers were killed and over 100 injured on April 9 when an electric train was derailed at the entrance to a tunnel at Sarria, near Barcelona, Spain. The heavy casualties were due to the wrecking of the cars when they struck the walls of the tunnel.

New Railway in Burma

LONDON.

A railway line from Moulmein, Burma, to Ye (89 miles) has been opened, according to the Times (London). This is the first link in the proposed line to connect the Burma railways with those of the Federated Malay States and Siam. Construction of this line was extremely difficult and was handicapped further by the heavy rainfall of the section which averages over an inch a day. The line parallels the coast and, due to the entire lack of highways, it was necessary to transport all materials by boat up the tidal creeks along the shore. Burma has a construction program which includes 1,000 miles of new line.

Miscellaneous Items

The following reports have been received by the Bureau of Foreign and Domestic Commerce:

Tenders for passenger cars and underframes for the Siamese State Railways are being solicited. Copy of tenders and specifications may be borrowed from the Transportation Division upon request, or purchased from the inspecting engineer of the Royal State Railways, C. P. Sandberg, 100 Broadway, New York City.

A standard gage railway will be built from Mukden to Hailung, a distance of 193 miles, by the Chinese provincial authorities. Tenders have been asked for 18,000 30-foot rails weighing 60 pounds to the yard, eight standard and two light locomotives and other equipment.

The Egyptian State Railways will purchase four buffet-parlor cars of the Pullman type. The requirements are: Bodies of timber construction mounted on steel underframes, or underframes and bodies combined, of all steel construction; internal furnishings, finishings, and decoration to be left to tenderers to submit schemes; Stone's system of electric lighting, fans, and apparatus for simple cooking and hot water supply; automatic vacuum brake of E. S. R. standard type; draught gear to be arranged so as to properly couple with E. S. R. standard locomotives and cars.

The South African Railways are short of rolling stock, on account of the increase in both passenger and freight traffic. To some extent this will be supplied by the shops in South Africa, but oversea purchases may be looked for through the office of the High Commissioner for South Africa, Trafalgar Square, London. Two leading American builders are said to have tendered lower bids than their British competitors, but were in turn underbid by a German firm by 20 to 30 per cent.

The Austrian Federal Railways have reduced rates on practically all classes of freight from the German frontier at Passau eastward to the Hungarian frontier, in order to attract German shipments to the Balkans through Austria and to put the Austrian rates on a competitive basis with other rates, particularly those through Czechoslovakia.

Arrangements for direct freight shipments between East Prussia and Soviet Russia were made at a meeting of representatives of the State Railways of Esthonia, Latvia, Lithuania, the Soviet Republic and Germany, held at Koenigsberg in February.

India's railway budget for 1925-26 proposes, among other things, the ultimate addition of over 2,000 miles to India's railways, of which 348 miles are to be opened during the next 12 months. Budget proposals also provide for 3,857 new freight cars and 822 new passenger coaches. For the electrification of the Great Indian Peninsula suburban line 10,300,000 rupees are provided, and for the electrification of the Bombay, Baroda & Central India suburban line into Bombay, 7,700,000 rupees are set aside. The construction of the Raipur-Parvatipur Railway (260 miles), which is

closely connected with the port of Vizagapatam, is contemplated.

The strike of German railway freight handlers has spread, and is now being supported by the more conservative railroad unions in the German Federation of Trades Unions. In Saxony nearly 4,000 freight workers have walked out, and the strike has spread to the Anhalter Bahnhof, one of the chief freight stations of Berlin. The railway unions are demanding a 10 per cent increase, on the grounds that their wages are considerably below the industrial wage level.

Improvement in Russian Railways Reported

The Russian Information Bureau, Washington, D. C., has made public a statement relative to the condition of the Russian railways based on bulletins received from the Commissariat of Transport in Moscow which follows in part:

"The greatest task was the restoration of the roadbed, railway structures and rolling stock, which the World War and the civil struggles left in a condition of extreme depletion.

"Of the 3,672 railway bridges with a total length of 48 miles destroyed during the civil wars, 2,301 with a total length of 36 miles have been permanently reconstructed and of the remainder all but 38 are in use under temporary repairs. Virtually all of the 1,250 miles of roadbed destroyed have been restored to operation and most of the destroyed storage buildings and the 406 water-tanks demolished in the period of civil strife have been replaced. During 1924, 17,500,000 new ties were laid, of which about half were treated.

"In spite of the loss of considerable mileage to the border states, railway mileage in the Soviet Union today is greater than that of the Russia of 1913. At the beginning of the present fiscal year (Oct. 1) 45,000 miles of line were in operation, as compared with 42,500 miles in 1913.

"The rehabilitation of the rolling stock has been a difficult problem. At the beginning of the fiscal year there were 20,203 locomotives, of which 45 per cent were in good order. In 1913 there were 20,320 locomotives, of which 83 per cent were listed in good order. During the last three years the good-order locomotives have increased at the rate of about 1,000 a year.

"Freight cars at the beginning of the year numbered 442,200, of which 70.5 per cent were in good order. In 1913 there were 502,101 freight cars, of which 76 per cent were in good order.

"The average daily run of freight locomotives and cars has increased rapidly during the past two years and is close to the pre-war figure, while the average freight car loading for last year was greater than in 1913.

"Passenger travel has been brought to pre-war standards. The speed of trains has been increased and they are run on time.

"The Railroad Code adopted June, 1922, which gave the railroads the status of juridical persons and made them responsible for loss and damage and delays to shipments, has aided greatly in the recovery. Under the code a scientific rate system has been worked out, economic surveys of the regions served have been plotted for future development, and modern efficiency methods have been applied for operation and management, as a result of which operating costs have steadily fallen."

Ewing Galloway

Railway Station, Genoa, Italy

Equipment and Supplies

Locomotives

THE MARYLAND & PENNSYLVANIA is inquiring for one Consolidation locomotive.

THE LITCHFIELD & MADISON has ordered one, eight-wheel switching locomotive from the American Locomotive Company.

THE FAIRPORT, PAINESVILLE & EASTERN has ordered one, six-wheel switching locomotive from the Baldwin Locomotive Works.

Freight Cars

THE GENERAL ELECTRIC COMPANY has ordered 10 steel underframe flat car bodies, of 50 ton's capacity from the American Car & Foundry Company.

THE CHICAGO, MILWAUKEE & ST. PAUL will have 1,000 freight cars rebuilt and will soon inquire for 500 mill type gondola cars and 1,000 flat cars in addition to its inquiry for 5,500 new cars reported in the *Railway Age* of April 18.

THE CHILE EXPLORATION COMPANY has ordered 16 flat cars and 15 flat car bodies from the Magor Car Corporation. Inquiry for the flat cars was reported in the *Railway Age* of March 28.

THE QUAKER CITY TANK LINE COMPANY has ordered 200 refrigerator cars from the General American Car Company in addition to the 100 ordered last month as reported in the *Railway Age* of March 21.

Passenger Cars

THE MISSOURI PACIFIC has ordered five two-car motor coach trains, from the Sykes Company.

THE MISSOURI PACIFIC has ordered two combination passenger and baggage gasoline rail motor cars, from the J. G. Brill Co.

THE PENNSYLVANIA RAILROAD has ordered one combination passenger and baggage gasoline motor rail car, from the J. G. Brill Company.

THE CANADIAN NATIONAL has ordered from the J. G. Brill Company one combination passenger and baggage, gasoline rail motor car.

THE NEW ORLEANS GREAT NORTHERN has ordered a combination passenger and baggage gasoline rail motor car, from the J. G. Brill Company.

THE SOUTHERN PACIFIC has ordered 27 passenger train cars as follows: 10, 72-ft. coaches from the Pullman Car & Manufacturing Corporation; 6, 70-ft. baggage horse cars from the American Car & Foundry Company; 6, 70-ft. combination baggage and mail cars from the Standard Steel Car Company and 5, 70-ft. baggage cars from the Bethlehem Shipbuilding Corporation. Inquiry for this equipment was reported in the *Railway Age* of March 21.

Iron and Steel

THE SOUTHERN PACIFIC is inquiring for 190 tons of structural steel.

THE LEHIGH & HUDSON RIVER is inquiring for 200 tons of steel for bridges.

THE ST. LOUIS SOUTHWESTERN is inquiring for 700 tons of steel for oil storage tanks.

THE NEW YORK CENTRAL has received bids on 700 tons of steel for a bridge at Erie, Pa.

THE BOSTON & MAINE has ordered 150 tons of steel for bridges from the Boston Bridge Company.

Machinery and Tools

THE NEW YORK CENTRAL is inquiring for two, 20-ton and four 25-ton locomotive cranes.

THE CENTRAL OF GEORGIA has placed orders for a 100-in. tire mill and for an axle lathe.

THE CLINCHFIELD has ordered one locomotive crane from the Brown Hoisting Machinery Company.

THE WESTINGHOUSE ELECTRIC & MANUFACTURING CO. is inquiring for a number of machine tools.

THE CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS has placed an order for a 27-in. by 16-ft. engine lathe.

THE BALTIMORE & OHIO has ordered three, 25-ton locomotive cranes from the McMyler Interstate Company.

THE ILLINOIS CENTRAL has ordered two, 20-ton locomotive cranes from the Orton & Steinbrenner Company.

THE CHICAGO & WESTERN INDIANA has ordered one combination pile driver and crane from the Industrial Works.

THE CHICAGO & EASTERN ILLINOIS has ordered one combination pile driver and crane from the Industrial Works.

THE ILLINOIS STEEL COMPANY has ordered one, 30-ton eight-wheel locomotive crane from the Orton & Steinbrenner Company.

THE ATCHISON, TOPEKA & SANTA FE is inquiring for one belt-driven 1½-in. bolt heading machine, one double dry emery grinding machine with two 24-in. by 3-in. emery wheels, one single wet tool grinder with 20-in. by 2½-in. wheel and one heavy duty type double head bolt cutter. This company is also inquiring for one 30-ton electric traveling crane.

THE UNION PACIFIC is inquiring for the following tools:

1 combination journal turning and axle lathe.
1 6-ft. full universal radial drill.
2 5-ft. plain radial drills.
1 self-contained four-column hydro-pneumatic press with pneumatic pull-back to table.
1 double end punch and shear with 24-in. throat.
1 mounting and demounting wheel press.
1 1,500-lb. steam drop hammer.
1 geared trimming press.
1 drill grinder.
1 32-in. extra heavy duty railroad shaper.
1 24-in. lathe, 9 ft. between centers.
1 18-in. lathe, 6 ft. 2 in. between centers.
1 radius internal and surface grinder.
1 28-in. upright drill press.
1 4-gag punch with 36-in. stroke to punch 1¼-in. hole in 1-in. material.
1 32-in. crank planing machine.
1 5-ft. plain heavy duty radial drill.
1 24-in. by 6 ft. between centers, engine lathe.
2 18-in. quick change engine lathes.
1 20-in. by 6 ft. between centers, engine lathe.
1 20-in. full universal monitor brass lathe.
1 44-in. heavy duty vertical boring and turning mill.
1 48-in. car wheel boring mill.
1 18-in. crank slotting machine.
1 2-in. pipe machine.
1 1¾-in. automatic multiple spindle screw machine.
1 12-ft. blacksmith's full pneumatic flanging clamp.
1 cornice brake.
1 52-in. foot gap shear.
1 die sharpener.

Track Specialties

THE SOUTHERN PACIFIC is inquiring for 5,100 tons of tie plates, 4,000 kegs of bolts and 18,800 kegs of spikes.

Signaling

THE CANADIAN NATIONAL is to install a half-interlocking at 107th street, Edmonton, Alberta, using color-light signals. The materials have been ordered from the Union Switch & Signal Company.

THE SOUTHERN PACIFIC has ordered from the Union Switch & Signal Company automatic block signals, to be installed by the railroad forces, on 65 miles of its line between Osman, Tex., and Sanderson. This order requires 89 semaphores, of which 68 are one-arm and 21 two-arm.

THE PENNSYLVANIA has ordered an electro mechanical interlocking machine from the Union Switch & Signal Company, for installation at B J Tower, Bradford, Ohio; 24 mechanical levers and 18 electric units. The Pennsylvania has also ordered Union electric units to be added to existing mechanical interlockings at Valparaiso, Ind., and at several other places.

Progress in Automatic Train Control

The Union Pacific's action in proceeding to install automatic train control on a third locomotive division, as announced in the *Railway Age* of April 11, applies to a section of road covered by the government's second order, that of July 18, 1924, the compulsory feature of which does not come into effect until February 1, 1926. The Atchison, Topeka & Santa Fe is another road on which the second order is already being carried out, the work now going on between Chicago and Chillicothe, Ill., 130 miles, being in territory designated by the order of 1924, not that of 1922. Nine roads have now completed the installations, including the equipment of locomotives, as called for by the commission's first order, namely: Chesapeake & Ohio; Chicago, Rock Island & Pacific; Chicago & Eastern Illinois; Southern Pacific; Galveston, Harrisburg & San Antonio; Atchison, Topeka & Santa Fe; Reading; Norfolk & Western; Oregon-Washington Railroad & Navigation Company.

LOCOMOTIVES ORDERED INSTALLED AND RETIRED

Month—1924	Domestic orders reported during month	Installed during month	Aggregate tractive effort	Retired during month	Aggregate tractive effort	Owned at end of month	Aggregate tractive effort	On order first of following month	Building in R. R. shops
January	125	271	15,228,895	178	4,447,721	64,989	2,552,694,953	439	14
February	85	214	11,296,088	175	4,906,435	65,029	2,559,519,253	457	10
March	283	176	10,457,064	181	6,033,173	64,911	2,560,076,766	520	7
April	100	97	4,167,388	112	2,881,385	64,896	2,561,362,769	552	11
May	107	153	6,949,353	107	2,600,445	64,942	2,565,706,413	447	10
June	1	160	7,687,383	178	4,575,358	64,924	2,569,121,875	360	72
July	83	197	10,590,558	113	3,354,456	65,008	2,576,433,377	401	63
August	8	229	12,513,395	166	5,346,176	65,062	2,583,372,980	324	50
September	101	160	7,061,560	151	4,351,378	65,071	2,586,083,994	285	37
October	135	113	5,743,775	220	5,712,633	64,964	2,586,106,026	358	76
November	90	181	8,460,795	263	7,749,794	64,882	2,586,826,278	265	70
December	172	295	12,311,451	304	9,724,426	64,871	2,589,358,971	287	64
Total for year 1924	1,413*	2,246	.....	2,148	.....	.....	.....	...	...
January, 1925	27	167	7,455,971	213	6,242,079	64,824	2,590,525,478	280	81
February	49	125	6,233,494	169	5,118,878	64,779	2,591,618,849	293	77
March	106	...	.....	...	.....	.....	.....	...	...
Total for 2 months	...	292	.....	...	.....	.....	.....	...	...
Total for 3 months	182	...	.....	...	.....	.....	.....	...	...

Details as to orders from *Railway Age* weekly reports. Figures include all domestic orders placed with builders and railroad shops, but not rebuilt equipment.

Figures as to installations and retirements prepared by Car Service Division, A. R. A., published in Form C. S. 56A-1. Figures cover only those roads reporting to the Car Service Division. They include equipment received from builders and railroad shops. Figures of installations and retirements alike include also equipment rebuilt to an extent sufficiently so that under the accounting rules it must be retired and entered in the equipment statement as new equipment. Figures as to orders as given in first column of table is not therefore comparable with figures relating to installations given in succeeding columns.

*Corrected figure.

Supply Trade News

The Harnischfeger Corporation, Milwaukee, Wis., has appointed A. M. Lockett & Co., New Orleans, La., its agent in Louisiana and Mississippi.

Wallace J. Goodrich, representative of the **Benjamin Electric Manufacturing Company,** Chicago, has been promoted to manager of the railroad department.

The Elvin Mechanical Stoker Company will remove its executive offices on May 10, from 50 Church street to the third floor of 30 Church street, New York City.

The U. S. Light & Heat Corporation on May 1 will remove its New York district office, from the Grand Central Terminal to 161 West Sixty-fourth street, New York City.

The Whiting Corporation, Harvey, Ill., has removed its Chicago district sales office from 945 Monadnock block to 1502 Railway Exchange. **R. S. Hammond** is district sales manager.

Benjamin Nields, Jr., sales agent for the **National Malleable & Steel Castings Company,** Cleveland, Ohio, on May 1 will remove his office from 30 Church street to 17 East Forty-second street, New York City.

S. G. Down, vice-president of the **Westinghouse Air Brake Company,** Wilmerding, Pa., has been elected also a member of the board of directors, filling a vacancy on the board created by the death of Morris Rosenwald.

E. S. Jackman & Company, agents of the **Firth-Sterling Steel Company,** have removed from 333 Frankfort avenue, Cleveland, Ohio, to their new warehouse and office at 1424 East Twenty-fifth street, N. E., Cleveland.

G. A. Blackmore, vice-president and general manager of the **Union Switch & Signal Company,** Swissvale, Pa., has been elected also a member of the board of directors. Mr. Blackmore takes the place of the late Morris Rosenwald of Chicago.

The Brown Hoisting Machinery Company, Cleveland, Ohio, has made the following appointments in its sales organization: **J. P. Case,** sales manager; **J. F. Poland,** manager of Chicago office and **E. W. Taylor,** manager of Pittsburgh office. In addition to his duties as sales manager Mr. Case will be in charge of Cleveland division sales.

The Elwell-Parker Electric Company, Cleveland, Ohio, has appointed the following district representatives: **The Vulcan Iron Works Company,** 1400 West Colfax avenue, Denver, Colo.; **Gates & Glassbrook,** 201 Dooly Block, Salt Lake City, Utah; **C. T. Patterson Company, Ltd.,** New Orleans, La., and the **Fuchs Equipment Company,** 1003 Farnam street, Omaha, Nebr.

Joseph M. Brown, formerly representing the W. F. Hebard Company, Chicago, has entered the sales organization of the **Chicago Malleable Castings Company,** Chicago, and will be engaged in the promotion of general sales. **Guy Bishop,** formerly sales representative of the Waugh Equipment Company, has been appointed sales representative of the Chicago Malleable Castings Company, Chicago.

The Bird-Archer Company, New York, will conduct its Canadian business after May 1 entirely from a general office at 300 McGill building, Montreal, Que. Previously the Canadian business has been conducted from the head offices at New York; the Canadian factory and laboratory will be located at Cobourg, Ont. **Hugh C. Harragin** will be in charge of the administration of the Canadian business with head offices at Montreal.

C. M. Robertson, vice-president in charge of Chicago sales of the **Consolidated Machine Tool Company,** has resigned to become sales engineer of the **Orton & Steinbrenner Company.** From 1901 to 1908 he was superintendent of the **Colburn Machine Tool Company,** Cleveland, and from the latter date until 1918 he was manager of the Chicago territory of the **Essley Machine Tool Company.** From 1918 until his recent promotion he was vice-president in charge of the Chicago sales of the **Consolidated Machine Tool Company.**

The Linde Air Products Company, New York, manufacturer and distributor of oxygen for welding and cutting, has opened the following new district sales offices: In the First National Soo Line building, Minneapolis, Minn., **C. E. Donegan,** district sales manager; Lincoln Life building, Birmingham, Ala., **W. A. K. Popp,** district sales manager, and in the Exchange National Bank building, Tulsa, Okla., **G. D. Grubb,** district sales manager. **J. W. Foster,** senior salesman in the Pittsburgh Linde district, has been appointed district sales manager at Baltimore, Md.

The extensive patent litigation which has been going on since 1911 between **The Safety Car Heating & Lighting Company** and the **U. S. Light & Heat Corporation,** and its predecessor, The United States Light & Heating Company, recently resulted in a judgment against the U. S. Light & Heat Corporation for over $500,000. The parties have agreed to settle this judgment by the sale to The Safety Car Heating & Lighting Company by the U. S. Light & Heat Corporation of all of its patents, machinery, equipment and inventory used in, or connected with car lighting. This sale does not include USL arc welders or the USL batteries. U. S. Light & Heat Corporation will therefore continue to manufacture and sell arc welders and a complete line of batteries, including train lighting batteries. The Safety Car Heating & Lighting Company will be in position to furnish USL type car lighting devices, repairs and replacements.

Obituary

H. F. Brandis, president and treasurer of the Springfield Manufacturing Company, Bridgeport, Conn., died on April 8.

James W. McQueen, president of the Sloss-Sheffield Steel & Iron Company, Birmingham, Ala., died at the age of 50, on April 20, while on a visit to New York. He was in railway service previous to 1891 when he entered the transportation department of the Sloss Company; he was made auditor the following year and in 1897 was appointed secretary and treasurer. In 1902 Mr. McQueen became a vice-president of the Sloss-Sheffield Steel & Iron Company and since 1918 had served as its president.

Trade Publications

SAFETY SUGGESTION.—In a leaflet issued by Templeton, Kenly & Co., attention is called to the fact that track jacks are sometimes accidentally tripped by the flopping of the trip while the jack is being operated. This can be avoided by removing the lug on the lever socket on which the trip rests when not in use. With this lug removed the trip hangs down out of the way. This change can be made on all double-acting jacks, and the lug has been eliminated on all new Simplex jacks.

"RAILROAD TO BE GIVEN AWAY" is the novel subject of a news item in the Boston Transcript, referring to the branch of the Central Vermont from Brattleboro, Vt., northwest 36 miles, to South Londonderry. Any young man who would like to go into the railroad business, says the Transcript, has an opportunity open to him, if he can arrange for a certain bond. John T. Cushing, representative of the Central Vermont, told a meeting of the Kiwanis Club that the company stands ready to turn this railroad over to any responsible individual, or group of individuals, who will give a bond to operate the road and pay the taxes. The man who accepted the offer would also have turned over to him an operating deficit of $50,000 annually and a tax bill from the state of Vermont for $7,500 additional. "As he rode over the road, he could catch occasional glimpses of the motor vehicles that compete with it. It has been figured out, incidentally, that a sufficient number of trucks to handle all the railroad's business would pay the state only about $500 a year in license fees. It is clearly a glorious opportunity for the right man."

Railway Construction

ATCHISON, TOPEKA & SANTA FE.—A contract has been awarded to the Sumner Sollitt Company, Chicago, for the construction of a one-story warehouse, 43 ft. by 250 ft., at Los Angeles, Cal.

ATCHISON, TOPEKA & SANTA FE.—An amendment to the charter of the Pecos & Northern Texas, a subsidiary of the Santa Fe, has been filed with the state of Texas. It provides for the construction of two branch lines, one to extend from Plainview, Tex., northwest to Friona, 68 miles, and the other from Plainview northeast to Silverton, 35 miles.

BOSTON & ALBANY.—The Boston Bridge Works, Boston, has a contract for structural steel work for a bridge over North street extension, Springfield, Mass.

BOSTON & MAINE.—Strengthening of the line between Ayer, Mass., and East Deerfield (68 miles) has been authorized and will cost approximately $125,000. A contract for rebuilding a bridge, at Athol, Mass., which is a part of the larger project, has been awarded to the Boston Bridge Works, Inc., Boston; estimated cost, $18,000. Contracts for the remainder of the work have not yet been awarded.

CHICAGO, MILWAUKEE & ST. PAUL.—The elevation of the tracks at Mayfair, Chicago, will be undertaken at once, the sum of $1,500,000 to defray the expense having been loaned to the St. Paul by the city of Chicago. Edward J. Brundage, one of the receivers of the St. Paul, has stated the opinion that the railway can legally accept the money for the improvement.

GREAT NORTHERN.—The electrification of the line from Tye, Wash., to Skykomish, a distance of 25 miles has been authorized. Plans have not been completed and it has not been decided whether the company itself will do the work or whether it will be carried out under contract.

LOS ANGELES HARBOR.—Bids will soon be taken for the construction of a viaduct which will carry the highway and tracks of the Atchison, Topeka & Santa Fe, Union Pacific, and other railroads into the Los Angeles Harbor district. The viaducts will be of steel and concrete construction 80 ft. wide, and will cost $535,000. The plans are now in the hands of the Railroad Commission of California.

NORTHERN PACIFIC.—A contract has been awarded to Foley Bros., Minneapolis, Minn., for the construction of an extension to the ore dock at Superior, Wis. The extension will consist of 108 additional pockets, each having a capacity of 350 tons. The superstructure will be of reinforced concrete and the foundation of piling enclosed with a sand-filled crib.

PENNSYLVANIA.—T. J. Foley, Pittsburgh, Pa., will construct an eastbound platform and shelter shed at Emsworth, Pa., at a cost of approximately $15,000.

READING.—The Curtis-Grindrod Company, Philadelphia, has a contract for general yard grading, ash handling facilities, inspection pits, crane runway, foundations, drainage, water supply and wash and locker buildings for this company's new engine terminal facilities at North Sixth street, Reading, Pa. The contract for the structural steel for the crane runway, cinder pits, inspection pits, etc., has been awarded to the Belmont Iron Works, Philadelphia.

READING.—A contract has been awarded to the McClintic-Marshall Company, Philadelphia, for furnishing and erecting the structural steel frame for a new freight car repair shop at Reading, Pa.

RIO GRANDE.—This company's charter has been amended to provide for the construction of an extension from Brownsville, Texas, to San Antonio, a distance of 275 miles, with a branch from Santa Elena to Rio Grande City, 40 miles, and another branch from Santa Elena to Falfurrias, 38 miles. The company now operates a 3 ft. 6 in. gage line from Brownsville to Point Isabel, about 26 miles.

Railway Financial News

AKRON, CANTON & YOUNGSTOWN.—*Bonds Sold.*—F. R. Sawyer & Co. of Boston and Stroud & Co. of Philadelphia have sold at 97 and interest, to yield over 6¼ per cent, $750,000 general and refunding mortgage bonds, approval for which was recently given by the Interstate Commerce Commission.

ATCHISON, TOPEKA & SANTA FE.—*Bonds of Subsidiary Companies.*—The following subsidiary companies have been authorized by the Interstate Commerce Commission to issue first mortgage 6 per cent bonds in the amounts named, to be delivered to the parent company in payment for advances for capital purposes. The Minkler Southern, $2,500,000; the Santa Fe & Los Angeles Harbor, $1,600,000; and the South Plains & Santa Fe, $1,000,000. The Rio Grande, El Paso & Santa Fe has been given authority similarly to issue a $230,000 general mortgage bond. A similar authorization with reference to a first mortgage bond of the North Texas & Santa Fe was reported in last week's *Railway Age*. In the case of each of these companies, all of the stock excepting directors' qualifying shares, is owned by the parent company and in each case the subsidiary company's lines are leased to the parent company or to the Panhandle & Santa Fe. In each case the bonds are in payment for indebtedness owing to the parent company in the form of notes, demand certificates of indebtedness or carried in open account payable on demand. In each case it was proposed that the security company make a mortgage to the Guaranty Trust Company of New York as trustee under date of July 1, 1924.

BELT RAILWAY OF CHICAGO.—1924 *Earnings.*—Annual report for 1924 shows net earnings after charges of $254,049 as compared with $411,727 in 1923. Selected items from the income statement follow:

BELT RAILWAY OF CHICAGO

	1924	1923	Increase or decrease
Railway operating revenues	$6,841,829	$7,192,498	—$350,668
Total operating expenses	$4,572,322	$4,588,500	—$16,178
Net revenue from operations	$2,269,508	$2,603,998	—$334,490
Railway tax accruals	530,524	476,537	53,986
Railway operating income	$1,738,078	$2,127,461	—$389,382
Non-operating income	$215,057	Dr. $57,075	$272,132
Gross income	$1,953,136	$2,070,386	—$117,250
Rent for leased road	$1,606,562	$1,560,673	$45,888
Total deductions from gross income	$1,699,086	$1,658,659	$40,427
Net income	$254,049	$411,727	—$157,677
Dividends	$187,200	$173,583	$13,617

BOSTON & MAINE.—*New Haven Favors Adjustment Plan.*—The Boston & Maine Holding Company, which holds in the interest of the New York, New Haven & Hartford 28.3 per cent of the voting stock of the Boston & Maine, has assented to the plan for financial readjustment recently announced. It is not stated whether the New Haven will subscribe to the new prior preference issue approved under the plan or accept the alternative of a scaling down of the par value of its holdings.

BESSEMER & LAKE ERIE.—1924 *Earnings.*—The annual report for 1924 shows net income after charges of $2,678,455 as compared with $6,146,304 in 1923. Selected items from income statement follow:

BESSEMER & LAKE ERIE

	1924	1923	Increase or decrease
Average mileage operated	228	228	.....
Railway operating revenues	$14,506,820	$20,367,252	—$5,860,432
Total operating expenses	$11,387,044	$13,917,892	—$2,530,848
Net revenue from operations	$3,119,776	$6,449,360	—$3,329,584
Railway tax accruals	$882,016	$996,989	—$114,973
Railway operating income	$2,237,459	$5,452,178	—$3,214,718
Hire of freight cars—Cr	$497,038	$1,319,167	—$822,129
Total non-operating income	$890,960	$1,756,879	—$865,919

Gross income	$3,128,419	$7,209,057	—$4,080,638
Rent for leased roads	$5,952	$5,953	—$1
Interest on funded debt	929,237	961,688	—32,450
Total deductions from gross income	$449,964	$1,062,753	—$612,789
Net income	$2,678,455	$6,146,304	—$3,467,849
Income applied to sinking and other reserve funds	Cr. $558,150	.....	—$558,150
Dividend appropriations of income	419,966	$419,966	.....
Total appropriations of income	Cr. $138,185	$419,966	—$558,150
Income balance transferred to profit and loss	2,816,640	5,726,339	—2,909,699

CHICAGO & NORTH WESTERN.—*Equipment Trusts Sold.*—Kuhn, Loeb & Co. and the National City Bank offered on Thursday $7,224,000 5 per cent equipment trust certificates at an average price of 101.05 to yield 4.80 per cent. Of these $5,768,000 are series O, maturing in equal annual installments from December 1, 1925, to December 1, 1938. They cover equipment purchased in 1923, including 50 locomotives, 50 passenger cars, 60 milk cars and 2,000 box cars at a cost of not less than $8,248,000. The series O certificates were issued in 1923 and the December 1, 1924, installment has matured and been paid off. The series P certificates mature in equal installments from February 1, 1926, to February 1, 1939. They were issued in 1923 and covered 1,000 stock cars purchased at a cost of not less than $2,080,560 and the first installment due February 1, 1925, has been paid.

CINCINNATI, LEBANON & NORTHERN.—*Tentative Valuation.*—The Interstate Commerce Commission has issued a tentative valuation report placing the final value of the property owned at $5,118,086 and that of the property used at $5,281,943, as of June 30, 1917.

CHICAGO & WESTERN INDIANA.—1924 *Earnings.*—The annual report for 1924 shows that net income after charges of $712,374 as compared with $754,343 in 1923. Selected items from the income statement follow:

(*Continued on page* 1068)

Annual Report

Illinois Central System—Seventy-Fifth Annual Report

FOR THE YEAR ENDED DECEMBER 31, 1924

Report of the Board of Directors

To the Stockholders of the Illinois Central Railroad Company:

The Board of Directors submits the following report of the operations and affairs of the Illinois Central Railroad Company for the year ended December 31, 1924, including The Yazoo & Mississippi Valley Railroad Company, the entire capital stock of which is owned or controlled by the Illinois Central Railroad Company. For convenience the two companies are designated by the term "Illinois Central System." This report differs from the reports of previous years in that the operations of The Yazoo & Mississippi Valley Railroad Company are included with those of the Illinois Central Railroad for the first time.

The number of miles of road operated as of December 31, 1923, was		6,213.80
Additions for Year:		
Trackage rights at Zeigler, Ill.	1.15 miles	
Construction of new line—Central City, Ky., to Dawson Springs, Ky., including relocation of Kentucky Midland R. R. tracks	27.39 "	
Various changes due to remeasurements	.87 "	29.41
The number of miles operated as of December 31, 1924, was		6,243.21
The average number of miles of road operated during the year was		6,218.06

Income

A summary of the income for the year ended December 31, 1924, as compared with the previous year is stated below.

	1924	1923	Increase+ Decrease—
Average miles operated during year	6,218.06	6,208.66	+ 9.40
Railway operating revenues	$173,838,131.99	$186,763,166.53	—$12,925,034.54
Railway operating expenses	134,024,920.62	150,023,276.50	— 15,998,355.88
Net revenue from railway operations	39,813,211.37	36,739,890.03	+ 3,073,321.34
Railway tax accruals	12,722,492.69	11,048,431.17	+ 1,674,061.52
Uncollectible railway revenues	56,902.49	27,396.58	+ 29,505.91
Railway operating income	27,033,816.19	25,664,062.28	+ 1,369,753.91
Equipment rents — net credit	613,235.64	Dr. *1,361,784.12*	+ 1,975,019.76
Joint facility rent — net credit	455,021.62	561,161.40	— 106,139.78
Net railway operating income	28,102,073.45	24,863,439.56	+ 3,238,633.89
Nonoperating income	3,577,826.06	4,907,859.31	— 1,330,033.25
Gross income	31,679,899.51	29,771,298.87	+ 1,908,600.64
Deductions from gross income	15,431,341.96	14,286,225.04	+ 1,145,116.92
Net income	16,248,557.55	15,485,073.83	+ 763,483.72

	1924	1923	Increase+ Decrease—
Disposition of net income:			
Income appropriated for investment in physical property	36,390.10	98,887.41	— 62,497.31
Total appropriations of income	36,390.10	98,887.41	— 62,497.31
Income balance transferred to credit of profit and loss	16,212,167.45	15,386,186.42	+ 825,981.03

Railway Operating Revenues

"Railway Operating Revenues" amounted to $173,838,131.99 this year, as compared with $186,763,166.53 last year, a decrease of $12,925,034.54, or 6.92 per cent. For details of "Railway Operating Revenues," see Table 2.

"Freight Revenue" decreased $10,552,325.69, or 7.39 per cent, due to a reduction in the volume of business transported as shown in Table 13. There were no substantial changes in rates during the year. The tons of revenue freight carried one mile were 14,284,712,470, a decrease of 1,867,085,970 tons, or 11.56 per cent, as compared with last year. The average rate per ton mile was .925 cent, an increase of .041 cent, or 4.64 per cent, compared with the previous year.

"Passenger Revenue" decreased $2,250,192.18 or 7.17 per cent. The number of passengers carried one mile was 972,067,080, a decrease of 49,001,555, or 4.80 per cent, compared with the previous year. The average revenue per passenger per mile decreased .076 cent, or 2.47 per cent. The decrease in Passenger Revenue was due to a decline in general business and motor bus competition in short haul traffic.

"Mail Revenue" increased $17,572.45, or 0.71 per cent. There were no material changes in mail traffic this year as compared with last year.

There was an increase of $44,002.11, or 1.06 per cent, in "Express Revenue," due to payments by the American Railway Express Company in connection with adjustments of previous years.

The increase of $87,871.09, or 6.98 per cent, in other passenger revenues, consisting of "Excess Baggage," "Parlor and Chair Car," "Milk," and "Other Passenger-Train Revenue," was accounted for by an increase in revenue from the operation of parlor and chair cars, an increase in payment by The Pullman Company for operating sleeping cars over system lines, and an increase in the volume of newspapers handled on passenger trains; this was offset in part by decreased revenues from an excess baggage and the transportation of milk.

There was a decrease of $28,742.67, or 1.35 per cent, in "Switching" and "Special Service Train Revenue," due to reduction in business handled.

"Incidental" and "Joint Facility Revenues" decreased $243,219.65, or 9.16 per cent, as a result of the general decline in business.

Railway Operating Expenses

"Railway Operating Expenses" amounted to $134,024,920.62, as compared with $150,023,276.50 last year, a decrease of $15,998,355.88,

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or 10.66 per cent. The details of "Railway Operating Expenses" will be found in Table 10.

There was a decrease of $5,091,962.23, or 17.55 per cent, in "Maintenance of Way and Structures Expenses," due to decreased outlays for repairs of tracks and roadway and upkeep of stations and other buildings and to a decrease in the "Equalization—Way and Structures" account in connection with the adjustment of maintenance reserves carried over from the previous year.

The decrease of $4,378,113.92, or 10.01 per cent, in "Maintenance of Equipment Expenses" was due to smaller outlays for repairs to locomotives and freight-train cars, on account of the reduction in business; this was offset in part by increased charges for depreciation by reason of new equipment placed in service.

The increase in "Traffic Expenses" of $97,804.04 was occasioned by increased advertising and additions to outside soliciting agencies, partly offset by a substantial saving in stationery and printing.

There was a decrease of $6,529,339.10, or 9.34 per cent, in "Transportation Expenses" due to the decrease in the volume of freight traffic handled, with the consequent reduction in freight-train service, and to a decrease in the cost and consumption of fuel. There was also a substantial reduction in the amounts charged out during the year for claims for loss and damage to freight and for injuries to persons.

The increase of $51,788.55, or 4.55 per cent, in "Miscellaneous Operations" was due to the increase in cost of operating dining and buffet service during the year.

There was a decrease of $38,696.18, or 0.89 per cent, in "General Expenses."

The decrease in expenses by reason of the increase of $109,837.04 in "Transportation for Investment—Credit," was on account of the increase in the volume of construction work carried on during the year.

Railway Tax Accruals

"Railway Tax Accruals" amounted to $12,722,492.69 this year, as compared with $11,048,431.17 last year, an increase of $1,674,061.52, or 15.15 per cent. The increase was due in part to an increase in Federal income taxes, increased Illinois charter tax accruals, and increases in other state taxes, due to increased assessments and levy rates.

Uncollectible Railway Revenues

"Uncollectible Railway Revenues" were $56,902.49 this year, as compared with $27,396.58 last year, an increase of $29,505.91.

Equipment Rents—Net Credit

"Equipment Rents—Net Credit" amounted to $613,235.64 this year, as compared with a debit of $1,361,784.12 last year, an increase of $1,975,019.76. This was largely due to decrease in per diem payments by reason of a reduction in the use of foreign equipment incident to the decline in general business.

Joint Facility Rent—Net Credit

"Joint Facility Rent—Net Credit" amounted to $455,021.62 this year, as compared with $561,161.40 last year, a decrease of $106,139.78.

Nonoperating Income

"Nonoperating Income" this year amounted to $3,577,826.06, as compared with $4,907,859.31 last year, a decrease of $1,330,033.25. There was a decrease in "Dividend Income" of $950,015.00, due to the non-receipt of any dividend from the Madison Coal Corporation, whereas last year $1,000,000.00 was received from this source; the reduction was partly offset by an increase of $49,985.00 in the amount of dividends received from the Central of Georgia Railway Company during the year. "Income from Funded Securities" decreased $391,859.05, substantially all of which consisted of a decrease in interest from government securities representing temporary investments of funds derived from the sale of securities in the preceding year which were largely disposed of in the same year. There was a decrease of $109,532.05 in "Income from Unfunded Securities and Accounts," representing decrease in interest on deposits with bankers and others, and decreases from "Miscellaneous Nonoperating Physical Property" and "Miscellaneous Income" of $36,055.21 These decreases were partly offset by "Income from Lease of Road," "Miscellaneous Rent Income," and "Income from Capital Advances to Affiliated Companies" aggregating $157,428.06.

Deductions from Gross Income

"Deductions from Gross Income" amounted to $15,431,341.96 this year, as compared with $14,286,225.04 last year, an increase of $1,145,116.92. There was an increase in "Interest on Funded Debt" of $730,447.50, due to the inclusion of interest during the entire year on securities issued last year, and, in addition, interest for portions of the year on securities issued during the current year, less interest on Equipment Trusts retired, as compared with a part year's interest on securities issued during the previous year, a comparison of which may be made by reference to Table 7 of the report this year, and the corresponding table for the previous year; an increase of $95,697.76 in "Interest on Unfunded Debt," substantially all of which was due to interest on short-term loans and interest allowed on Preferred Stock subscriptions during the year; an increase of $331,508.76 in "Amortization of Discount on Funded Debt," due to the inclusion of this item for the first time in this year's Income Account, the item heretofore having been charged directly to "Profit and Loss"; an increase in "Rent for Leased Roads" of $54,136.74, due to increased rental payments to the Dubuque & Sioux City Railroad Company and the Chicago, St. Louis & New Orleans Railroad Company; and an increase in "Maintenance of Investment Organization" of $1,062.35. These increases were partly offset by a decrease in "Separately Operated Properties—Loss" of $64,240.18, due largely to a reduction in the loss from operating elevators at New Orleans, and decreases in other minor items aggregating $3,496.01.

Financial

The General Balance Sheet reflects the financial condition of the Illinois Central System Companies on December 31, 1924, as compared with the previous year.

Capital Stock and Funded Debt

At a meeting of the Board of Directors of the Illinois Central Railroad Company, held October 7, 1924, a resolution was adopted extending to common stockholders of record October 22, 1924, the privilege of subscribing to common stock at par to the extent of ten per cent of their holdings, payments to be made on or before December 10, 1924. There was $10,646,700.00 par value of common stock subscribed and paid for. Preferred stock to the amount of $658,000.00 par value was converted into common stock during the year.

Illinois Central Equipment Trust Certificates, Series "K," amounting to $12,945,000.00, were issued and sold in December, 1924.

Under the terms of the Illinois Central Railroad Company and Chicago, St. Louis & New Orleans Railroad Company Joint First Refunding Mortgage, there were issued in March, 1924, $6,486,000.00 Five Per Cent Bonds, Series "A," in reimbursement for improvements made to the mortgaged property. These bonds, together with other bonds of the same issue heretofore held in the treasury, aggregating in all $11,604,000.00, were sold in March, 1924. Under the terms of the mortgage, $73,000.00 par value of Series "A," or Dollar Bonds, were issued in exchange for £14,600 Sterling Bonds, the equivalent of $70,810.00 of Series "B," or Sterling Bonds, upon payment of the difference of $2,190.00 in cash.

There were retired and cancelled under the terms of the respective trust agreements Illinois Central Equipment Trust Certificates, Series, Series "C," $198,000.00; Series "D," $190,000.00; Series "E," $550,000.00; Series "H," $217,000.00; Series "I," $443,000.00; Chicago, St. Louis & New Orleans Railroad Company Equipment Trust Certificates, Series "A," $570,000.00; Government Equipment Trust No. 33, $647,100.00, and under the equipment contract with The Pullman Company, $147,460.82, a total of $2,962,560.82.

Securities Owned

During the year a subscription of $50,000.00 was made to the Agricultural Credit Corporation, on which payments aggregating sixty per cent of the subscription were made, and for which there were received Agricultural Securities Corporation Collateral Income Gold Bonds of the par value of $30,000.00.

The Peoria & Pekin Union Railway Company redeemed $15,000.00 par value of its Five Per Cent Debenture Bonds maturing November 1, 1924.

There were sold in June, 1924, $2,000,000.00 par value of United States Treasury Four and Three-quarters Per Cent Notes of 1926, Series "A."

Acquisition of the Gulf & Ship Island Railroad

Under an agreement dated November 17, 1924, your Company acquired control of the entire outstanding capital stock of the Gulf & Ship Island Railroad Company, subject to the approval of the Interstate Commerce Commission. The Gulf and Ship Island Railroad Company owns the line of railroad extending from a connection with the system lines at Jackson, Miss., to Gulfport, Miss., with branches from Maxie, Miss., to Mendenhall, Miss., and from Saratoga, Miss., to Laurel, Miss., approximating in all 307 miles of line. The Gulf & Ship Island Railroad Company contributes a considerable volume of business to the system lines,

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and it is anticipated that through control its value as a feeder will be materially augmented.

Lease of the Alabama & Vicksburg and Vicksburg, Shreveport & Pacific Railways

Subject to approval by the Interstate Commerce Commission, arrangements have been made to lease for a long term of years the properties of the Alabama & Vicksburg Railway Company and the Vicksburg, Shreveport & Pacific Railway Company. These companies at present own and operate a continuous line of railway from Meridian, Miss., to Shreveport, La., with a transfer across the Mississippi River between Delta, La., and Vicksburg, Miss., and intersect the Illinois Central System lines at Vicksburg, Miss., and Jackson, Miss.; the combined mileage of the two roads is 312.93 miles. The lease of these lines will add materially to the volume of system traffic and should prove beneficial to your Company.

Additions and Betterments—Expenditures:

There was expended during the year for "Additions and Betterments" (including improvements on subsidiary properties) $28,970,440.99.

Physical Changes

The following is a summary of the more important improvements during the year, the cost of which was charged, wholly or in part, to "Road and Equipment":

Additions and Betterments—Road:

Work on the Chicago terminal improvements was continued. Four main tracks were placed in permanent position between 70th and 82d Streets, which involved constructing one mile of new main track and rearranging the connection to the north end of Fordham Yard. Separation of grades with the Pennsylvania Railroad and the Baltimore & Ohio Chicago Terminal Railroad at Riverdale, Ill., involving track elevation from Highlawn, Ill., to Blue Island Junction, Ill., just south of Kensington, Ill., was continued. The work of elevating main tracks through Harvey, Ill., was continued. The subway at Richton, Ill., was completed; also subways at Matteson, Ill., in connection with separation of grades with the Michigan Central Railroad and Elgin, Joliet & Eastern Railway. A subway was constructed at Volmer Road, north of Olympia Fields, Ill. A concrete bridge over the twenty-foot sewer at 39th Street Pumping Station was constructed and main tracks lined to permanent location. The concrete and steel viaduct for overhead connection with the Chicago Junction Railway at 41st Street was completed and placed in service August 3, 1924. The subways between Kensington, Ill., and Burnside, Ill., were extended easterly and fill made for two additional main tracks on the easterly edge of the right-of-way. Main tracks Nos. 4, 5 and 6 in this territory were relined to conform with the plan for electrification. The grading for Markham Yard, located between Harvey, Ill., and Homewood, Ill., was continued. The yard tracks in the Southbound Receiving Yard were laid and completed. Work on three concrete subways under Markham Yard at 171st Street was completed. An overhead walkway from suburban platform to depot at Randolph Street was constructed. A subway under Michigan Boulevard at Van Buren Street was begun. Rearrangements and improvements were made to suburban stations at 31st Street, 36th Street, 39th Street, 43d Street and 47th Street. Construction of concrete foundations for bridge over the Calumet River at Riverdale, Ill., is in progress. The construction of a new freight house at Harvey, Ill., was begun. The construction of interlocking plants at Markham Yard in the Northbound and Southbound Classification Yards is in progress. An interlocking plant was constructed at Homewood, Ill. The construction of a 200,000-gallon steel water tank at South Water Street, Chicago, was begun. A concrete retaining wall was completed on the east side of the right-of-way, between 8th Street and Roosevelt Road, a distance of thirteen hundred feet. The filling of submerged lands along the shore of Lake Michigan, between 16th and 26th Streets, was continued. Work was started on the overhead catenary system for the suburban electrification, ninety per cent of the foundations on the South Chicago Branch and fifteen per cent of those on the main line being completed.

Five hundred twenty-one Company sidings, representing 81.69 miles of track, and 230 industrial sidings were built or extended.

The construction of the line from Central City, Ky., to Dawson Springs, Ky., was completed and the line placed in service December 1, 1924.

The construction of second main track from Spaulding, Ill., to Springfield, Ill., and from Clark, Ky., to the Tennessee River was completed. A second main track between Wilderman Junction, Ill., and Layfield, Ill., a distance of 39.47 miles, was begun.

The grade reduction work through Paxton, Ill., and the elevation of tracks through Champaign, Ill., referred to in the previous report, were completed.

The construction of a sea wall along the river front at Vicksburg, Miss., was completed.

The construction of new passenger stations at Champaign, Ill., and Normal, Ill., referred to in the report of the previous year, was completed. New passenger stations were constructed at Effingham, Ill., Grand Junction, Tenn., and Carrollton Ave., New Orleans, La., and a new passenger station practically completed at Baton Rouge, La. New freight facilities were constructed at Paxton, Ill., and Baton Rouge, La., and work was begun on a new freight house at Indianapolis, Ind. A new passenger and freight station was constructed at Clayton, Miss. Extensive alterations and additions were made to the freight house at Memphis, Tenn., to accommodate the United States Railway Mail facilities.

Interlocking plants were constructed at Richton, Ill., and Champaign, Ill.

The construction of coal chutes at Gilman, Ill., Dubuque, Iowa, Council Buffs, Iowa, and Central City, Ky., referred to in the report of the previous year, were completed. Work was begun on a 600-ton coal chute at Dawson Springs, Ky.

The work of installing 150-ton track scales at Champaign, Ill., Mounds, Ill., Jackson, Tenn., and Harahan "B" Yard, New Orleans, La., referred to in the report of the previous year, was completed. A similar scale was installed at Stuyvesant Docks, New Orleans, La.

Two creosoted water tanks of 100,000-gallon capacity were erected at Makanda, Ill., and one each at Pond River, Ky., Jackson, Tenn., Haleyville, Ala., and Clayton, Miss. Steel water tanks of similar capacity were installed at Dawson Springs, Ky., Madisonville, Ky., and Central City, Ky. A 50,000-gallon creosoted wooden tank was erected at East St. Louis, Ill., and a 40,000-gallon wooden tank at Greenup, Ill.

The installation of an automatic train control system between Champaign, Ill., and Branch Junction, Ill., a distance of 122.3 miles, was begun. The line between Champaign, Ill., and Tuscola, Ill., a distance of 21.7 miles, was completed and ten locomotives equipped for test purposes.

Automatic block signals were installed at North Yard, Memphis, Tenn., .6 track mile. The installation of automatic block signals between Boyd, Iowa, and Fort Dodge, Iowa, a distance of 85.2 miles, is in progress.

Two thousand seven hundred ninety-three lineal feet of permanent bridges and trestles were constructed, replacing pile and timber bridges and trestles; 1,530 lineal feet of permanent bridges and trestles and 11,467 lineal feet of pile and timber bridges and trestles were rebuilt. Twenty-seven miles of track were ballasted and brought up to standard.

Additions and Betterments—Equipment:

Eighteen Mikado type freight locomotives were added. Five 8-wheel type passenger locomotives, one Mogul type freight locomotive and two 6-wheel type switching locomotives were retired and one transferred to shop service. Twenty-seven locomotives of various classes were superheated.

Forty-five passenger-train cars were purchased and seven passenger-train cars were retired.

Five thousand nine hundred ninety-nine freight-train cars were added and eight thousand seven hundred fifty-two freight-train cars were retired or transferred to other classes.

General Remarks

A geneal depression in business was in evidence most of the year throughout the territory served by your lines, as a consequence of which there was a substantial decrease in revenues. However, as a result of the conservative policy of past years in maintaining the property of your Company at the highest standard, it was possible to effect reductions in operating expenses that more than offset the decline in revenues. The balance available for dividends at the close of the year was somewhat in excess of the corresponding figure for the previous year.

The policy of adding to and improving the roadway and equipment of your Company was continued during the year, and there was expended and charged to capital account $28,970,440.99. In order to provide funds for these improvements it was necessary to sell additional securities, which was accomplished on satisfactory terms.

The number of stockholders of record at the close of the year was 21,804, of whom 15,643 were holders of common shares and 6,161 were holders of preferred shares. There were 19,470 stockholders at the close of last year.

The Board of Directors takes pleasure in expressing its appreciation to the officers and employees for their loyal and efficient services.

By order of the Board of Directors.

C. H. MARKHAM, President.

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Wabash Railway Company—Ninth Annual Report

To the Stockholders of the Wabash Railway Company:

The Board of Directors submit the following report of the operations for the year ended December 31, 1924:

	1924	1923	Increase or Decrease
Average Mileage Operated	2,489.93	2,476.59	13.34
Operating Revenues	$65,780,929.36	$66,617,636.46	—$836,707.10
Operating Expenses	$50,298,417.63	$52,033,494.68	—$1,735,077.05
Net Operating Revenue	$15,482,511.73	$14,584,141.78	$898,369.95
Railway Tax Accruals	$3,036,367.15	$2,470,800.00	$565,567.15
Uncollectible Railway Revenues	14,181.61	16,384.39	—2,202.78
Total	$3,050,548.76	$2,487,184.39	$563,364.37
Operating Income	$12,431,962.97	$12,096,957.39	$335,005.58
Other Operating Income:			
Rent from Locomotives	$97,053.75	$51,129.17	$45,924.58
Rent from Passenger-Train Cars	41,038.46	31,247.44	9,791.02
Rent from Floating Equipment	29,130.97	6,348.50	22,782.47
Rent from Work Equipment	19,372.93	20,595.58	—1,222.65
Joint Facility Rents	525,895.92	373,004.76	152,891.16
Total	$712,492.03	$482,325.45	$230,166.58
Total Operating Income	$13,144,455.00	$12,579,282.85	$565,172.16
Deductions from Operating Income:			
Hire of Freight Cars—Debit Balance	$1,852,217.21	$1,751,072.82	$101,144.39
Rent for Locomotives	116,643.42	106,722.21	9,921.21
Rent for Passenger-Train Cars	73,721.46	70,834.32	2,887.14
Rent for Floating Equipment	800.00	20.10	779.90
Rent for Work Equipment	43,206.35	29,578.14	13,628.21
Joint Facility Rents	1,710,086.49	1,623,654.46	86,432.03
Total	$3,796,674.93	$3,581,882.05	$214,792.88
Net Operating Income Section 422 Transportation Act 1920	$9,347,780.07	$8,997,400.79	$350,379.28
Non-Operating Income:			
Income from Lease of Road	$19,616.52	$24,474.43	—$4,857.91
Miscellaneous Rent Income	159,248.56	149,676.19	9,572.37
Miscellaneous Non-Operating Physical Property	27,203.16	30,315.21	—3,112.05
Dividend Income	127,092.00	100,584.00	26,508.00
Income from Funded Securities	30,673.34	30,146.70	526.64
Income from Unfunded Securities and Accounts	134,630.25	281,029.53	—146,399.28
Income from Sinking and other Reserve Funds	212.50	212.50	.....
Miscellaneous Income	31,715.66	44,182.45	—12,466.79
Total	$530,391.99	$660,621.01	—$130,299.02
Gross Income	$9,878,172.06	$9,658,021.80	$220,150.26
Deductions from Gross Income:			
Rent for Leased Roads	$365,250.53	$296,527.52	$68,723.01
Miscellaneous Rents	23,688.00	26,389.91	—2,701.91
Miscellaneous Tax Accruals	12,491.41	11,372.88	1,118.53
Interest on Funded Debt	3,953,703.06	3,860,182.90	93,520.16
Interest on Unfunded Debt	15,455.75	17,805.49	—2,349.74
Amortization of Discount on Funded Debt	30,297.51	32,444.72	—2,147.21
Miscellaneous Income Charges	2,336.59	2,424.73	—88.14
Total	$4,403,222.85	$4,247,148.15	$156,074.70
Net Income	$5,474,949.21	$5,410,873.65	$64,075.56

Financial

CAPITAL STOCK. The par value of Capital Stock issued to December 31, 1924, was $138,492,967.17, there having been no change during the year.

Under the Articles of Incorporation the holders of the Five Per Cent. Convertible Preferred Stock B, may, at any time after August 1, 1918, and up to thirty days prior to any date fixed for the redemption of the entire issue of Five Per Cent. Profit Sharing Preferred Stock A, convert the same into, and exchange the same for, Five Per Cent. Profit Sharing referred Stock A and Common Stock of the corporation; such conversion to be at the rate of $50.00, par value of Five Per Cent. Profit Sharing Preferred Stock A and $50.00 par value of Common Stock, for each $100.00, par value of Five Per Cent. Convertible Preferred Stock B with a proper adjustment of declared and unpaid dividends.

During the year $2,054,800, par value of Five Per Cent. Convertible Preferred Stock B was surrendered and exchanged for $1,027,400, par value of Five Per Cent. Profit Sharing Preferred Stock A, and $1,027,400, par value of Common Stock. Since August 1, 1918, there has been $43,330,000, par value of Five Per Cent. Convertible Preferred Stock B, surrendered and exchanged for $21,665,000, par value of Five Per Cent. Profit Sharing Preferred Stock A, and $21,665,000, par value of Common Stock.

FUNDED DEBT. The total funded debt on December 31, 1924, was $81,314,036.49, a net increase of $1,098,225.74, as compared with December 31, 1923. This increase was due to issuing certain obligations and retiring others, as follows:

Issued During the Year:		
Gondola Car Agreement of 1924	$341,398.75	
Automobile Box Car Agreement of 1924	2,034,427.50	
		$2,375,826.25
Retired During The Year:		
Equipment Trust of 1920—6% Certificates	$503,600.00	
Equipment Trust of 1922—5% Certificates	283,000.00	
New Passenger Equipment—Agreement of 1922	71,417.88	
Equipment Trust of 1923—5½% Certificates	134,000.00	
Gondola Car Agreement of 1924	34,139.88	
Automobile Box Car Agreement of 1924	203,442.75	
Detroit and Chicago Extension First Mortgage Bonds	48,000.00	
		$1,277,600.51
Net Increase		$1,098,225.74

The issue of $341,398.75 is an Agreement of Conditional Sale dated February 15, 1924, between General American Car Co., Vendor, and Wabash Railway Company, Vendee, for the purchase of 250 Gondola Cars at a total cost of $684,778.29, of which $343,379.54 was paid in cash; the balance of $341,398.75 payable in ten equal semi-annual installments of $34,139.88, beginning October 1, 1924, bearing interest at the rate of 5 per cent per annum payable semi-annually October 1st and April 1st of each year.

The issue of $2,034,427.50 is an Agreement of Conditional Sale, dated February 1, 1924, between Western Steel Car and Foundry Co., Vendor, and Wabash Railway Company, Vendee, for the purchase of 1750 40-ton capacity steel underframe Automobile Box Cars at a total cost of $4,083,555.44, of which $2,252,570.69 was paid in cash up to December 31, 1924. It has been arranged to cover the balance due under this Conditional Sale Agreement with Wabash Railway Equipment Trust Certificates Series "D" in the amount of $1,826,000.00. These Trust Certificates Series "D" are payable in eleven equal and consecutive annual installments of $166,000.00 commencing December 1, 1928, and ending December 1, 1938, bearing interest at the rate of 5% per annum, payable semi-annually, June 1st and December 1st of each year.

Arrangements have been made for an issue of $2,565,000.00 par value Wabash Railway Equipment Trust Certificates, Series "E," dated December 1, 1924, payable in fifteen equal and consecutive annual installments of $171,000.00 commencing December 1, 1925, and ending December 1, 1939, bearing interest at the rate of 5% per annum, payable semi-annually June 1st and December 1st of each year. Proceeds to be used in part payment for ten steel baggage cars, four steel passenger chair cars, two steel dining cars, three steel combination passenger and baggage cars, fifty heavy Mikado locomotives and twenty-five cabooses purchased under the terms of Wabash Railway Equipment Trust Agreement, Series "E," dated December 1, 1924, between Andrew S. Hannum and Granville H. Davis, Vendors, Bank of North America and Trust Company, Trustee, and Wabash Railway Company, the total cost of the equipment being $3,493,297.00. The remainder of the purchase price not provided by issue of these certificates will be paid in cash. The transaction will be consummated and delivery of the equipment made in 1925.

Road and Equipment

Road

Increased weight of rail and fastenings	$174,967.12
Application tie plates	91,948.36
Application rail anchors	24,170.91
Drainage	14,456.21
Ballasting	138,013.48
Additional tracks	208,546.41
Bridge renewals and improvements	217,214.83
Grade separation	341,313.93
River protection	65,971.18
Crossings and crossing protection	41,938.62
Signals and interlockers	11,284.06
Stations	22,262.53
Enlargement of dock facilities	11,217.40
Shop and storehouse facilities, Decatur, Ill	487,856.00
Power plants	23,632.34
Enginehouses and turntables	52,013.67
Shop machinery	54,925.19
Special assessments	35,313.67
	$2,017,045.91

Equipment

New:			
24 freight locomotives		$1,470,536.59	
1,750 automobile cars	$4,083,555.44		
250 gondola cars	684,778.29		
23 standard cabooses	55,523.86		
		4,823,857.59	
10 tank cars		6,223.15	
			$6,300,617.33

[Advertisement]

Additions and Betterments

Steam Locomotives:		
Convert 2 freight locomotives to passenger locomotives	$39,581.49	
Applying superheaters to 7 locomotives	13,067.24	
Applying Walschaert valve gear, new cylinders and frames to 12 locomotives	10,910.67	
Applying aluminum headlight cases to 122 locomotives	5,819.35	
Applying stop and check valves to 155 locomotives	8,228.38	
Miscellaneous	11,628.17	
		$89,235.30
Box Cars:		
Rebuilt and reinforced 67 box cars	$39,084.86	
Miscellaneous improvements	2,432.67	
		41,517.53
Automobile Cars:		
Rebuilt and reinforced with box girder type center sills and apply pressed steel ends to 197 automobile cars	$162,252.21	
Miscellaneous improvements	6,081.59	
		168,333.80
Coal Cars:		
Rebuilt and reinforced 100 coal cars		94,926.67
		$6,694.630.63

The following is a general description of the expenditures enumerated:

One hundred and eleven miles of new 90 lb. rail were laid, 4 miles in repairs and renewals and 107 miles releasing rails of lighter weight. The replacing of the lighter rail was: 19 miles on the Detroit Division, 56 miles on the Decatur Division, 22 miles on the Moberly Division and 10 miles on the Western Division.

The policy of improving the condition of ballasting in main tracks was continued by applying 26,757 cubic yards of crushed rock on the Detroit Division, 14,329 cubic yards on the Peru Division and 9,442 cubic yards on the Western Division, and by applying 20,746 cubic yards of additional gravel ballast on the Springfield Division and 16,726 cubic yards on the Moberly Division.

Additional interchange tracks were constructed and placed in service with the Detroit & Ironton Railroad of 51 car capacity, at Oakwood, Mich.; with the Toledo & Western Ry. Co., of 125 car capacity, at Adrian, Mich.; and with the Ft. Wayne Union Ry. Co., of 33 car capacity, at Ft. Wayne, Ind. Industrial tracks of 51 car capacity to serve Northern Indiana Gas & Electric Co., at Ft. Wayne, Ind., and tracks of 49 car capacity to serve the Polar Wave Ice & Fuel Co., at Decatur, Ill., were placed in service. A 100 car capacity passing track was constructed at Sand, Mich. The rearrangement and extension of tracks and driveways in 17th St. Yard, started in 1923, and an extension to the "River Track" of 24 car capacity, at Detroit, Mich., were completed. A team track of 20 car capacity on the Decatur Division and one of 20 car capacity on the Western Division were constructed.

The program of replacing pile and trestle structures with steel and concrete was continued during the year, the bridges involved being: Bridge No. 116, near Gilmore, Mo., on the Moberly Division; Bridges No. 541-A, near Norborne, Mo., and No. 914, near Pattonsburg, Mo., on the Western Division; Bridge No. 1449, at South Milford, Ind., on the Detroit Division, started in 1923, was completed. Bridges No. 258, near Markham, Ill., and No. 633, near Kinderhook, Ill., on the Springfield Division, were replaced during the year with improved structures.

Elimination of grade crossing at Lafayette St., Ft. Wayne, Ind., started in 1923, was 91% complete at the end of the year. The undergrade crossing for the state highway at Wentzville, Mo., started in 1923, was completed during the year. An undergrade crossing was constructed for the state highway at High Hill, Mo. Separation of grades at Green and Central Aves., Detroit, Mich., started in 1923, was completed. Work was started on the separation of grades at Fort St. and Lawndale Ave., Detroit, Mich., and was approximately 90% completed. A permanent bridge at Dix Ave., in connection with the separation of grades at Detroit, Mich., was placed in service.

Crossing signals for protection of highway traffic were completed at the following points: Sand Creek, Mich., Belleville, Mich., Huntington, Ind., Mansfield, Ill., Boody, Ill., Reddick, Ill., Philo, Ill., and Sturgeon, Mo. Highway crossings were renewed and improved at various locations in the states of Michigan and Illinois and at St. Louis, Mo.; the overhead highway bridge consisting of three panel frame structure 60 ft. long on concrete piers near Attica, Ind., was replaced with a concrete arch.

Installation of automatic block signals between Birmingham and Harlem, Mo., started in 1923, was completed.

A new coach shop with transfer table, a storehouse, oil house and fuel oil storage house, together with sidewalks, sewers, yard lighting, air and steam lines, water and fire protection lines, and track facilities, were constructed and placed in service at Decatur, Ill., to replace facilities destroyed by fire February 26, 1924. In connection with these buildings, a power plant was constructed, consisting of two 500 H. P. water tube boilers, additional vacuum pump, additional boiler feed pump, ash conveyor, concrete coal bins, and elevated coaling tracks.

The installation of a gantry crane with concrete cinder pits and engine washing pits, at Moberly, Mo., was completed. Construction of five stall frame enginehouse at Hamilton, Ill., started in 1923, was completed. Replacement of 70 ft. turntable with 100 ft. turntable, at Hannibal, Mo., started in 1923, was completed.

In addition to eighty-eight units of shop machinery and portable tools installed in the new coach shop at Decatur, Ill., to replace equipment destroyed in fire February 26, 1924, there were twenty units of new shop machinery installed during the year, as follows: at Decatur shops two hydraulic pumps and 15 H. P. motor, one 20" motor driven brass turret lathe, two electric arc welders, one 15" x 6' bolt lathe, one 6' radial drill, one 36" draw cut shaper, one 15-ton electric motor driven traveling crane, one motor driven milling machine with cutters, two 18" motor driven engine lathes, one 24" motor driven engine lathe, two electric industrial crane trucks, two Fordson tractors with twenty trailers; at Montpelier roundhouse one electric arc welding machine; at Luther roundhouse two economy boilers.

Special assessments for street improvements were made by the following municipalities: Antwerp, O., New Haven, Ind., Huntington, Ind., Lafayette, Ind., Woodburn, Ind., Monticello, Ill., Cerro Gordo, Ill., Taylorville, Ill., Quincy, Ill., Moberly, Mo., and Moulton, Ia.

Federal Valuation

The valuation of your railway property by the Interstate Commerce Commission, in accordance with the Valuation Act of 1913, has progressed during the year. The company forces are engaged in checking with representatives of the Interstate Commerce Commission, the data prepared at time inventory of the property was taken, and gathering additional information and facts so as to be in a position to proceed to a final valuation whenever the Interstate Commerce Commission complete their work and officially place a value on the property.

The total expenditures on account of valuation to December 31, 1924, were $1,125,726.96.

Operating Revenues

The operating revenues for the Year 1924 compare with 1923 as follows:

	1924	1923	Increase or Decrease	Per Cent Increase or Decrease
Freight	$51,546,109.90	$51,698,168.30	—$152,058.40	—.29
Passenger	9,328,464.61	9,794,594.11	—466,129.50	—4.76
Mail	849,062.05	832,168.99	16,893.06	2.03
Express	1,702,325.44	1,690,049.44	12,276.00	.73
Miscellaneous	2,354,967.36	2,602,655.62	—247,688.26	—9.52
Total	$65,780,929.36	$66,617,636.46	—$836,707.10	—1.26

The decrease in freight revenue of $152,058.40 was principally attributable to the general business depression during the months of April, May, June and July.

A comparison of freight revenue by general classes of traffic follows:

Commodity	Revenue 1924	Revenue 1923	Increase or Decrease
Products of Agriculture	$7,799,738	$7,606,885	$192,853
Products of Animals	6,040,945	6,290,849	—249,904
Products of Mines	7,783,183	7,225,487	557,696
Products of Forests	2,630,156	2,641,346	—11,190
Manufactures and Miscellaneous	20,407,493	20,844,541	—437,048
Merchandise	6,884,595	7,089,060	—204,465
Total	$51,546,110	$51,698,168	—$152,058

The decrease in passenger revenue of $466,129.50 was largely due to loss in local passenger earnings as result of the extension of motor bus and interurban service and the more common use of private automobiles.

Miscellaneous revenue decreased $247,688.26, the most important loss being in demurrage revenue, resulting from the prompt loading and unloading of cars at large terminals and the absence of congestions in traffic.

Operating Expenses

The operating expenses for the year 1924 compare with 1923 as follows:

Accounts	1924	1923	Increase or Decrease	Per Cent
Maint. of Way and Structures	$9,913,564.74	$9,501,515.13	$412,049.61	4.34
Maint. of Equipment	11,579,913.53	13,884,271.29	—2,304,357.76	—16.60
Traffic	1,640,320.43	1,518,003.85	122,316.58	8.06
Transportation — Rail Line	24,973,374.17	24,997,689.92	—24,315.75	—.10
Miscellaneous Operations	346,745.32	326,555.71	20,189.61	6.18
General	1,932,980.86	1,864,184.81	68,796.05	3.69
Transp. for Investment —Cr.	88,481.42	58,726.03	29,755.39	50.67
Total Operating Expense	$50,298,417.63	$52,033,494.68	—$1,735,077.05	—3.33

[Advertisement]

The ratio of operating expenses to revenues for the year 1924 was 76.46% as compared with 78.11% for the year 1923, a decrease in the per cent of 1.65.

The increase in Maintenance of Way and Structures expenses of $412,049.61, or 4.34%, was principally due to the laying of more rail and track fastenings than in the previous year.

Expenses of the Traffic Department increased $122,316.58, or 8.06% over the previous year, due to general readjustment in the Traffic Department, the opening of new offices and additions to the soliciting force at various points.

Transportation and Traffic Statistics

The details of Freight and Passenger Statistics and Transportation Statistics relating to train and car loading and commodities handled are fully shown on Pages 24, 25, 26 and 27 (of pamphlet report).

Taxes

The constant increase in the amount of taxes referred to in the last Annual Report, has continued during the present year, as reflected in the Income Account of pamphlet report and is due to the increase in the valuation of the Company's properties in Missouri and Michigan, and a general increase in taxation for improved highway construction and for public school purposes.

Development

Property was acquired or contracted for to provide for enlargement of terminal facilities at Montpelier, O., 22.49 acres; Peru, Ind., 75.94 acres; Decatur, Ill., 5.27 acres; and Kansas City, Mo., 109.86 acres; for industrial tracks at Ft. Wayne, Ind., .57 acres; and for freight house and additional team tracks at Columbia, Mo., 2.24 acres.

Forty-nine new industries were located on the tracks of your Company during the year.

General Remarks

At a special meeting of the stockholders of the Company held at Fort Wayne, Ind., on December 29, 1924, action was taken by the stockholders authorizing the execution of a Refunding and General Mortgage and the issue of bonds to be known as the "Wabash Railway Company Refunding and General Mortgage Bonds," the aggregate principal amount of which at any time outstanding, together with all prior obligations as defined in the Refunding and General Mortgage, to be limited to one and one-half times the aggregate par value of the then outstanding capital stock of the Railway Company. The bonds are to be issued in series, each series to bear such date or dates and have such maturity or maturities and bear interest at such rate or rates as may from time to time, be determined and prescribed by the Board of Directors of the Railway Company.

Under this authority there will be executed and delivered to the Equitable Trust Company of New York and Edward B. Pryor, as trustees, a mortgage or deed of trust, such mortgage covering the lines of railroad, franchises, equipment, terminals and property therein described.

Pursuant to the authority thus obtained, arrangements have been made (subject to the approval of the Interstate Commerce Commission) to issue Refunding and General Mortgage Bonds to be known and designated as "Series A," in the amount of $12,500,000.00, these bonds to be dated March 1, 1925, and to mature March 1, 1975, bearing interest at the rate of 5½% per annum payable semi-annually on March 1st and September 1st of each year.

None of the bonds of "Series A" is to be redeemable prior to March 1, 1935, but all and not a part of the bonds of such series are to be redeemable at the option of the Railway Company on March 1, 1935, or on any interest date thereafter, at 105% and accrued interest, on not less than 60 days' previous notice.

$2,500,000.00 principal amount of these bonds are to be used for the purpose of reimbursing in part capital expenditures heretofore made by the Company out of Income. The Company has invested from November 1, 1915, to December 31, 1924, out of Income, a total of $21,008,666.71, of which $10,057,841.85 was spent in the acquisition and construction of additional terminal properties general improvement of the road-bed, tracks, bridges, shops, roundhouses, stations, buildings, etc. $1,891,806.47 was invested in securities of terminal and other affiliated railroad companies and $9,059,018.39 was used in the retirement of outstanding interest-bearing obligations.

$10,000,000.00 principal amount of the "Series A" bonds are to be issued for the purpose of providing to that extent for estimated capital expenditures during the current year for additions, betterments, equipment and other capital purposes. Authority has been given for the construction of new freight yards at Kansas City, Mo., Montpelier, Ohio, and Detroit, Mich., additional new car and locomotive shop buildings at Decatur, about 14 miles of new second track between Montpelier, Ohio, and Detroit, Mich. the lengthening of many side tracks, and the purchase of 1,000 automobile freight cars.

An agreement was made with the Ann Arbor Railroad Company for the joint use of that company's tracks and facilities between Milan, Mich., and Manhattan Junction in Toledo, Ohio, effective December 1, 1924.

By order of the Board of Directors.

J. E. TAUSSIG,
PRESIDENT.

WABASH RAILWAY COMPANY

Condensed General Balance Sheet

December 31, 1924, Compared with Precious Year

ASSETS

	1924	1923	Increase or Decrease
Investments:			
Investment in Road and Equipment	$242,553,968.40	$233,114,916.39	$9,439,052.01
Sinking Funds	1,093.97	1,745.36	—651.39
Deposits in Lieu of Mortgaged Property Sold	10,556.10	950.34	9,605.76
Miscellaneous Physical Property	2,003,432.51	2,001,150.79	2,281.72
Investments in Affiliated Companies	3,701,030.78	3,436,227.06	264,803.72
Other Investments	35,335.88	1,529,804.63	—1,494,468.75
Total	$248,305,417.64	$240,084,794.57	$8,220,623.07
Current Assets:			
Cash	$5,380,729.05	$3,276,986.11	$2,103,742.94
Special Deposits	1,680.00	900.00	780.00
Loans and Bills Receivable	1,549,239.02	3,056,926.60	—1,507,687.58
Traffic and Car Service Balances Receivable	1,712,724.34	1,112,905.32	599,819.02
Net Balances due from Agents and Conductors	567,952.03	689,531.30	—121,579.27
Miscellaneous Accounts Receivable	2,166,687.98	2,091,423.28	75,264.70
Material and Supplies	4,196,487.05	5,790,715.30	—1,594,228.25
Interest and Dividends Receivable	75,663.46	76,648.43	—984.97
Rents Receivable	65,886.00	19,155.00	46,731.00
Other Current Assets	235,098.78	227,861.74	7,237.04
Total	$15,952,147.71	$16,343,053.08	—$390,905.37
Deferred Assets:			
Working Fund Advances	$223,831.43	$213,875.43	$9,956.00
Insurance and Other Funds	18,189.01	6,035.63	12,153.38
Other Deferred Assets	5,772.61	1,693.78	4,078.83
Total	$247,793.05	$221,604.84	$26,188.21
Unadjusted Debits:			
Rents and Insurance Premiums Paid in Advance	$43,857.02	$23,146.01	$20,711.01
Discount on Funded Debt	190,079.29	219,525.96	—29,446.67
Other Unadjusted Debits	1,200,152.79	1,799,961.76	—599,808.97
Securities Issued or Assumed —Unpledged	1,396,971.66	1,376,971.66	20,000.00
Securities Issued or Assumed —Pledged	203,000.00	203,000.00	.....
Total	$3,034,060.76	$3,622,605.39	—$588,544.63
Total Assets	$267,539,419.16	$260,272,057.88	$7,267,361.28

LIABILITIES

	1924	1923	Increase or Decrease
Stock:			
Capital Stock	$138,492,967.17	$138,492,967.17	.....
Long Term Debt:			
Funded Debt Unmatured	$81,314,036.49	$80,215,810.75	$1,098,225.74
Current Liabilities:			
Traffic and Car Service Balances Payable	$1,436,964.18	$1,633,288.31	—$196,324.13
Audited Accounts and Wages Payable	4,907,022.27	5,848,843.97	—941,821.70
Miscellaneous Accounts Payable	424,213.17	618,839.92	—194,626.75
Interest Matured Unpaid	282,663.25	286,677.00	—4,013.75
Funded Debt Matured Unpaid	1,200.00	1,200.00	.....
Unmatured Interest Accrued	1,012,310.74	1,002,703.28	$9,607.46
Unmatured Rents Accrued	247,628.28	226,364.84	21,263.44
Other Current Liabilities	305,022.74	319,750.78	—14,728.04
Total	$8,617,024.63	$9,937,668.10	—$1,320,643.47
Deferred Liabilities:			
Other Deferred Liabilities	$128,593.78	$25,871.06	$102,722.72
Unadjusted Credits:			
Tax Liability	$2,117,434.88	$1,731,464.98	$385,969.90
Insurance and Casualty Reserves	52,524.89	28,895.71	23,629.18
Operating Reserves	504,628.48	638,664.36	—134,035.88
Accrued Depreciation—Equipment	6,147,223.90	5,098,709.67	1,048,514.23
Other Unadjusted Credits	1,777,346.69	1,260,283.81	517,062.88
Total	$10,599,158.84	$8,758,018.53	$1,841,140.31
Corporate Surplus:			
Additions to Property	$312,257.17	$175,341.49	$136,915.68
Funded Debt Retired	.....	342,210.00	—342,210.00
Profit and Loss Balance	28,075,381.08	22,324,170.78	5,751,210.30
Total	$28,387,638.25	$22,841,722.27	$5,545,915.98
Total Liabilities	$267,539,419.16	$260,272,057.88	$7,267,361.28

[ADVERTISEMENT]

(*Continued from page* 1062)

CHICAGO & WESTERN INDIANA

	1924	1923	Increase or decrease
Average mileage operated	.....	.....	.....
Railway operating revenues	$374,533	$376,840	—$2,307
Maintenance of way	$25,535	$29,455	—$3,921
Maintenance of equipment	150,188	128,825	21,362
Transportation	234,099	238,413	4,314
Total operating expenses	$437,157	$422,616	$14,542
Operating ratio	116.72	112.15	.....
Net loss from railway operations	$62,624	$45,775	$16,849
Joint facility rent income	$2,472,343	$2,459,737	$12,607
Income from lease of roads	1,951,764	1,922,464	29,300
Total non-operating income	$4,665,586	$4,567,979	$97,607
Gross income	$4,602,961	$4,522,204	$80,758
Railway tax accruals	$735,706	$585,652	$150,053
Interest on funded debt	2,975,333	3,006,426	—31,093
Total deductions from gross income	$3,890,587	$3,767,861	$122,726
Net income	$712,374	$754,343	—$41,969
Income applied to sinking and other reserve funds	$243,192	$225,518	$17,673
Surplus for year carried to profit and loss	$469,182	$528,825	—$59,642

DALLAS, CLEBURNE & SOUTHWESTERN.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon and dismantle its line from Cleburne to Egan, Tex., 9.82 miles.

EUREKA NEVADA.—*Sale.*—The Eureka Nevada has been sold to the Eureka Nevada Development Syndicate Company for a consideration reported as $700,000. The line extends from Eureka, Nev., to Palisade, a distance of approximately 88 miles.

FLORIDA EAST COAST.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue and sell $15,000,000 of first and refunding mortgage 5 per cent bonds to be sold to J. P. Morgan & Co., at 90½.

GULF, MOBILE & NORTHERN.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to retire $4,000,000 of first mortgage 6 per cent bonds held in the treasury and to issue a like amount of first mortgage 5½ per cent bonds, to be sold at 96.75 to Kuhn, Loeb & Co., and the proceeds to be used for retirements and improvements.

LEHIGH & HUDSON RIVER.—1924 *Earnings.*—Annual report shows net income after charges for 1924 of $487,175 as compared with $624,942 for 1923. Selected items from the income statement follow:

LEHIGH & HUDSON RIVER

	1924	1923
Average mileage operated	96.60	96.60
Railway operating revenues	$3,146,657	$3,117,709
Maintenance of way	$412,949	$329,470
Maintenance of equipment	521,810	565,166
Transportation	1,163,127	1,176,185
Total operating expenses	$2,240,096	$2,193,039
Net revenue from operations	$906,560	$924,670
Railway tax accruals	165,917	155,608
Railway operating income	$740,543	$769,040
Non-operating income	$39,938	$101,704
Gross income	$780,480	$870,745
Total deductions from gross income	$293,305	$245,802
Net income	$487,175	$624,942
Dividends, 10 per cent	$470,700	$470,700

LONGVIEW, PORTLAND & NORTHERN.—*Securities.*—This company has applied to the Interstate Commerce Commission for authority to issue and sell $500,000 of capital stock and $3,250,000 of 10-year first mortgage 6 per cent bonds, the proceeds to be used for construction purposes.

MISSOURI-KANSAS-TEXAS.—1924 *Earnings.*—The annual report shows net income after adjustment bond interest of $5,508,437 as compared with the net income in 1923 of $2,608,681. The 1924 net was equivalent, after allowing for the full 7 per cent dividend requirements on the preferred stock, to $4.72 a share on 806,755 shares of no par value common stock. Selected items from the income statement follow:

MISSOURI-KANSAS-TEXAS

	1924	1923	Increase or decrease
Average mileage operated	3,193.14	3,359.76	166.62
Railway operating revenues	$57,309,345	$55,987,918	$1,321,427
Maintenance of way	$7,563,137	$7,393,307	$169,830
Maintenance of equipment	11,517,475	14,636,724	—3,119,249
Transportation	17,363,774	18,380,269	—1,016,494
Total operating expenses	$39,732,035	$43,628,319	—$3,896,284
Net revenue from operations	$17,577,310	$12,359,599	$5,217,711
Railway tax accruals	3,215,687	2,587,461	628,226
Railway operating income	$14,330,220	$9,746,046	$4,584,174
Equipment rents	$40,460	$38,189	$2,271
Joint facility rents	140,931	177,902	36,971
Total non-operating income	$877,155	$1,953,603	—$1,076,448
Gross income	$15,207,375	$11,699,649	$3,507,726
Hire of freight cars—Dr. bal.	1,069,243	519,501	549,743
Total deduction from gross income	$2,182,897	$1,517,981	$664,916
Balance available for interest	$13,024,478	$10,181,669	$2,842,810
Fixed interest charges	4,725,955	4,781,974	—56,018
Balance available for interest on adjustment bonds	$8,298,523	$5,399,695	$2,898,828
Interest on adjustment bonds	2,790,085	2,791,014	928
Balance	$5,508,438	$2,608,681	$2,899,756

MISSOURI PACIFIC.—*Bonds Sold.*—Kuhn, Loeb & Co. have sold $25,000,000 first and refunding mortgage 6 per cent bonds, series E, due May 1, 1955.

The purpose of this issue is to provide for the redemption of $9,044,000 first and refunding mortgage bonds, Series "C," which are to be called for redemption on August 1, 1925, to reimburse the company for capital expenditures already made and to provide funds for additional capital expenditures.

The first and refunding mortgage bonds are secured on 6,734 miles of railroad of the company, upon valuable terminal properties, depots and bridges, upon all the equipment owned by the company having a depreciated book value as of December 31, 1924, of $50,935,461 over outstanding equipment trust certificates and upon $23,703,000 par value of preferred stock of the Texas & Pacific, subject to $125,981,500 of prior lien bonds on various parts of the system, for the retirement of which, at or before maturity, first and refunding mortgage bonds are reserved. The prior liens may not be increased; they may be acquired and deposited under the first and refunding mortgage without impairment of lien, but unless and until they have been so deposited they may not be renewed or extended. The first and refunding mortgage bonds are a first lien on 3,299 miles of railroad and a refunding lien on the remaining 3,435 miles, subject to prior liens thereon as above stated. After giving effect to this financing, the first and refunding mortgage bonds, including the amount of loans from the United States Government and short term notes secured by such bonds, will be outstanding at the rate of about $26,500 per mile on the mileage on which the bonds are a first lien.

MUSCLE SHOALS, BIRMINGHAM & PENSACOLA.—*Sale.*—This property, which has been in receivership since March 5, 1924, was sold on April 20 under foreclosure at a price of $229,000 to John W. Malone, Pensacola banker, heading a syndicate of local men.

NEW JERSEY, INDIANA & ILLINOIS.—*Authorized to Issue Stock.*—The Interstate Commerce Commission has granted authority to this company to issue $256,639 capital stock, $44,100 to be delivered to the Wabash in payment for advances and the $212,539 to be distributed as a dividend. Inasmuch as all of the stock of the New Jersey, Indiana & Illinois is owned by the Wabash, the dividend accrues to the latter company.

NEW ORLEANS, TEXAS & MEXICO.—*Rumored Acquisition.*—This company is reported to have acquired an option to purchase a majority interest in the capital stock of the San Antonio, Uvalde & Gulf. This company operates a total of 316 miles. It has a line from San Antonio, Tex., via Pleasanton to Corpus Christi and another from Pleasanton to Crystal City, Uvalde & Carrizo Springs which connects with the Gulf Coast Lines at Corpus Christi and Odem and with the International-Great Northern, which is now controlled by the New Orleans, Texas & Mexico at San Antonio and Gardendale. The company has been in receivership since 1914. It has outstanding $315,000 stock and $4,413,000 funded debt.

PITTSBURGH & WEST VIRGINIA.—1924 *Earnings.*—The annual report for 1924 shows net income after charges of $2,120,022 as compared with $1,875,874 in 1923. The figures which follow include down as far as net railway operating income the operations of the West Side Belt. That company, which secures practically all its revenue from its rental paid by the Pittsburgh & West Virginia, reported for 1924 a deficit after charges of $69,499 as compared with a net of $211,028 in 1923, the reason for the reduction in net being chiefly the inclusion in the 1924 statement of $352,855

paid to the Pittsburgh & West Virginia for 1922 interest on advances.

PITTSBURGH & WEST VIRGINIA

	1924	1923
Average mileage operated	167	166
Railway operating revenues	$4,164,733	$3,844,587
Maintenance of way	$451,460	$511,948
Maintenance of equipment	1,074,891	1,170,616
Transportation	880,990	996,364
Total operating expenses	$2,901,327	$3,020,328
Net revenue from operations	$1,263,406	$824,259
Railway tax accruals	498,228	481,112
Railway operating income	$764,877	$343,101
Equipment rents	$12,142	$10,806
Joint facility rents—Dr.	33,582	22,933
Net railway operating income	$1,576,950	$1,322,584
Dividend income	720,000	220,000
Total non-operating income	$872,817	$806,834
Gross income	$2,449,767	$2,129,418
Rent for leased roads	$302,617	$253,275
Total deductions from gross income	$329,745	$253,545
Net income	$2,120,022	$1,875,874
Dividends	$542,260	$544,242
Surplus for year carried to profit and loss	$1,577,762	$1,331,632

SOUTHERN PACIFIC.—*Stock Issued by Subsidiary.*—The Interstate Commerce Commission has granted authority to the Central Pacific to issue $2,600,000 4 per cent preferred stock, this stock to be delivered to the Southern Pacific Company, which owns all of the stock of the Central Pacific, for deposit with the trustee of the Central Pacific stock collateral 4 per cent bonds. The commission at the same time has granted authority to the Southern Pacific Company to issue $2,600,000 of these bonds to be delivered to the Central Pacific. No arrangements have been made by the Central Pacific for the sale of the bonds and the commission's order provides that the bonds may be sold by it only after securing authorization for such sale.

TOLEDO, PEORIA & WESTERN.—1924 *Earnings.*—Annual report shows deficit after charges of $359,311 as compared with a deficit in 1923 of $466,431. Selected items from the income statement follow:

TOLEDO, PEORIA & WESTERN

	1924	1923	Increase or Decrease
Railway operating revenues	$1,908,795	$1,826,217	$82,579
Maintenance of way	$320,642	$361,975	—$41,333
Maintenance of equipment	433,953	584,451	—150,497
Transportation	889,344	914,469	—25,125
Total operating expenses	$1,754,750	$1,978,592	—$223,842
Net revenue from operations	$154,045	$152,376	$306,421
Railway tax accruals	102,000	129,000	—27,000
Railway operating income	$51,734	def. $282,475	$334,210
Total non-operating income	Dr. $38,770	$82,488	—$121,257
Gross income	$12,963	def. $199,987	$212,953
Total deductions from gross income	$372,276	$266,444	$105,832
Net income—Deficit	$359,311	$466,431	—$107,121

Dividends Declared

Georgia, Southern & Florida.—1st and 2nd preferred, 2½ per cent, payable May 28 to holders of record May 14.

Pullman Company.—$2.00, quarterly, payable May 15 to holders of record April 30.

Trend of Railway Stock and Bond Prices

	April 21	Last Week	Last Year
Average price of 20 representative railway stocks	77.33	77.65	62.76
Average price of 20 representative railway bonds	90.25	89.67	85.26

THE PROPOSED CONSTITUTIONAL AMENDMENT before the California legislature to have the railroad commission of that state elected instead of appointed by the governor as at present has been defeated.

Railway Officers

Executive

C. W. Huntington, president of the Virginian, has resigned, effective April 30.

Financial, Legal and Accounting

E. L. Benner has been appointed general auditor of the Minnesota Western, with headquarters at Minneapolis, Minn., succeeding J. F. Cullinan.

G. R. Kent has been appointed assistant commissioner of real estate of the New York, New Haven & Hartford, with headquarters at Boston, Mass. **R. M. Wilson** has been appointed assistant real estate agent and **C. A. Bowman** has been appointed rent agent, both with the same headquarters. Mr. Bowman succeeds T. J. McCarthy, deceased. **F. E. Hanson** has been appointed engineer of surveys, lines east, with headquarters at Boston and **R. H. Rich** has been appointed to a similar position on the lines west, with headquarters at New Haven.

Operating

C. B. Wilson has been appointed trainmaster of the Gladstone division of the Minneapolis, St. Paul & Sault Ste. Marie, with headquarters at Gladstone, Mich., a newly created position.

William H. Corbett, whose promotion to superintendent of the Gladstone division of the Minneapolis, St. Paul & Sault Ste. Marie, with headquarters at Gladstone, Mich., was reported in the *Railway Age* of April 11, was born on May 11, 1871, at Chippewa Falls, Wis. He entered railway service in April, 1889, as a telegraph operator on the Minneapolis, St. Paul & Sault Ste. Marie and was promoted to train dispatcher in May, 1892. Mr. Corbett was promoted to chief train dispatcher on the Missouri river division in October, 1901, and subsequently was transferred to the Winnipeg, Duluth-Superior, and Wisconsin and Peninsula divisions. He was promoted to trainmaster of the Minnesota division in December, 1914, and was transferred to the Wisconsin and Peninsula division in January, 1916. Mr. Corbett remained there until his recent promotion to superintendent of the Gladstone division.

Traffic

A. T. Patek has been appointed assistant general freight agent of the St. Louis-San Francisco, with headquarters at St. Louis, Mo., succeeding F. C. Dumbeck, deceased.

H. L. McCaughey, general agent of the passenger department of the Canadian National, with headquarters at Chicago, has been transferred to Detroit, Mich., succeeding **J. H. Burgis,** deceased.

W. E. Scull, Jr., has been appointed traveling freight and passenger agent of the Seaboard Air Line, with headquarters at 101 Home Bank Building, Wilmington, N. C., succeeding H. G. Smallbones, deceased.

F. J. Kemper and **Ashley Poynor** have been appointed general agents of the freight traffic department of the Gulf Coast Lines, with headquarters respectively at Atlanta, Ga., and Indianapolis, Ind., in charge of newly established traffic agencies.

B. H. Taylor, whose promotion to general freight agent of the Denver & Rio Grande Western, with headquarters at Denver, Colo., was reported in the *Railway Age* of March 21, was born on January 8, 1890, in North Carolina. He entered railway service in November, 1903, in the traffic department of the Norfolk & Western, at Norfolk, Va., where he remained until October, 1913, when he was appointed soliciting freight agent of the Baltimore Steam Packet Company. Mr. Taylor was in he United States Army from July, 1917, to September, 1919, after which he was appointed general agent of the Gulf Coast Lines, with headquarters at Houston, Tex. He was promoted to assistant general freight agent in Sep-

tember, 1921, and held that position until his recent appointment as general freight agent of the Denver & Rio Grande Western.

Mechanical

R. G. Bennett, whose promotion to general superintendent of motive power of the Southwestern region of the Pennsylvania, with headquarters at St. Louis, Mo., was reported in the *Railway Age* of April 4, was born on March 31, 1882, at Brighton, England, and was graduated from Purdue University in 1908. He entered railway service in January, 1900, as a machinist's apprentice on the Pennsylvania, and completed his apprenticeship in 1904. While attending college, Mr. Bennett was employed during summer months as a machinist, draftsman and inspector on the Pennsylvania. In November, 1908, he was appointed motive power inspector and held that position until March, 1912, when he was transferred to the maintenance of way department as a rodman. He was appointed inspector in the tests department in March, 1913, in charge of the locomotive test plant at Altoona, Pa. In May, 1916, Mr. Bennett was promoted to assistant master mechanic and in February, 1917, was promoted to assistant engineer of motive power of the Central division. He was appointed master mechanic at Sunbury, Pa., in July, 1917, and in May of the following year was transferred to the Pittsburgh division. He was promoted to superintendent of motive power of the Central Pennsylvania division in December, 1919, where he remained until his recent promotion to general superintendent of motive power of the Southwestern region.

R. G. Bennett

Engineering, Maintenance of Way and Signaling

C. A. Knowles has been appointed valuation engineer of the Chesapeake & Ohio, with headquarters at Richmond, Va., succeeding R. B. Burks, deceased.

J. L. Maher, division engineer of the Charleston division of the Baltimore & Ohio, with headquarters at Weston, W. Va., has been transferred to the Monongah division, with headquarters at Grafton, W. Va.

L. W. Althof has been appointed division engineer of the Idaho division of the Oregon Short Line, with headquarters at Pocatello, Idaho, succeeding **F. D. Nauman,** who has been promoted to engineer maintenance of way.

George B. Farlow, assistant engineer of the Pittsburgh division of the Baltimore & Ohio, with headquarters at Pittsburgh, Pa., has been promoted to division engineer of the Charleston division, with headquarters at Weston, W. Va.

W. R. Armstrong, assistant chief engineer of the Oregon Short Line, with headquarters at Salt Lake City, Utah, has been promoted to general superintendent of the Los Angeles & Salt Lake, with headquarters at Los Angeles, succeeding N. A. Williams, transferred.

H. M. Van Gelder has been appointed electrical engineer of the Department of City Transit, Philadelphia, Pa., to take charge of the design and to supervise the installation of electrical equipment for the new Broad street subway system. Up to 1920, Mr. Van Gelder was with the Westinghouse, Church, Kerr & Company, holding the positions of electrical engineer and then managing engineer. Since that time, he has been engaged on various steam railroad electrification projects; recently on electrification studies for the Canadian Pacific.

Purchasing and Stores

W. B. Hall, general storeheeper of the Denver & Rio Grande Western, with headquarters at Denver, Colo., has been promoted to general purchasing agent, with the same headquarters, a newly created position.

Obituary

E. W. Huben, trainmaster at Sapulpa, Okla., for the St. Louis-San Francisco, died on April 5, following an operation.

George F. Stump, assistant general freight agent of the Long Island, died in a hospital in New York, on April 22, shortly after his return from the South where he had spent the past four months recuperating from a prolonged illness. Mr. Stump had been in the service of the Long Island since 1895.

Aaron M. Burt, vice-president in charge of maintenance and operation of the Northern Pacific, with headquarters at St. Paul, Minn., died suddenly at Jamestown, N. D., on April 20 from an attack of pneumonia. He was stricken while on an inspection trip over the line. Mr. Burt was born on May 1, 1866, at Syracuse, N. Y., and entered railway service in April, 1885, in the engineering department of the Colorado Midland, now the Midland Terminal. Prior to December, 1896, he held various positions in engineering departments, serving successively as division engineer on the Colorado Midland, the Northern Pacific, the Minneapolis, St. Paul & Sault Ste. Marie and the Chicago & North Western. Mr. Burt was appointed supervisor of bridges and buildings of the Northern Pacific in January, 1897, and was promoted to assistant superintendent, with headquarters at Grand Forks, N. D., on March 1, 1902. On October 10, 1923, he was promoted to division superintendent at Jamestown, N. D., and was subsequently transferred to Fargo, N. D., Missoula, Mont., and Spokane, Wash. He was promoted to chief engineer maintenance of way on January 1, 1914, and was promoted to acting general manager in April, 1918. He was appointed assistant general manager in August of that year and held that position until June, 1919, when he was appointed assistant director, Division of Operation, of the United States Railroad Administration, with headquarters at Washington, D. C. On March 1, 1920, Mr. Burt was appointed assistant to the vice-president in charge of operation of the Northern Pacific, with headquarters at St. Paul. He was promoted to assistant vice-president in 1923 and was elected vice-president in charge of maintenance and operation in January, 1925, succeeding J. M. Rapelje, who also died suddenly on January 20. Mr. Burt was a member of the board of direction of the American Railway Engineering Association at the time of his death. He also served as chairman of the automatic train control committee appointed by the United States Railroad Administration during the period of federal control.

A. M. Burt

MARION, N. J., to North Philadelphia, Pa., 81.3 miles, in one hour, 11 minutes, was the record made by a special train over the Pennsylvania on the evening of April 17, run to carry Captain Charles Nungesser, who had engagements to make addresses both in Jersey City and Philadelphia on the same evening. The train started from Marion, 2 1-3 miles west of Jersey City terminus at 9:30 p. m.; average rate of speed, 68.7 miles an hour.